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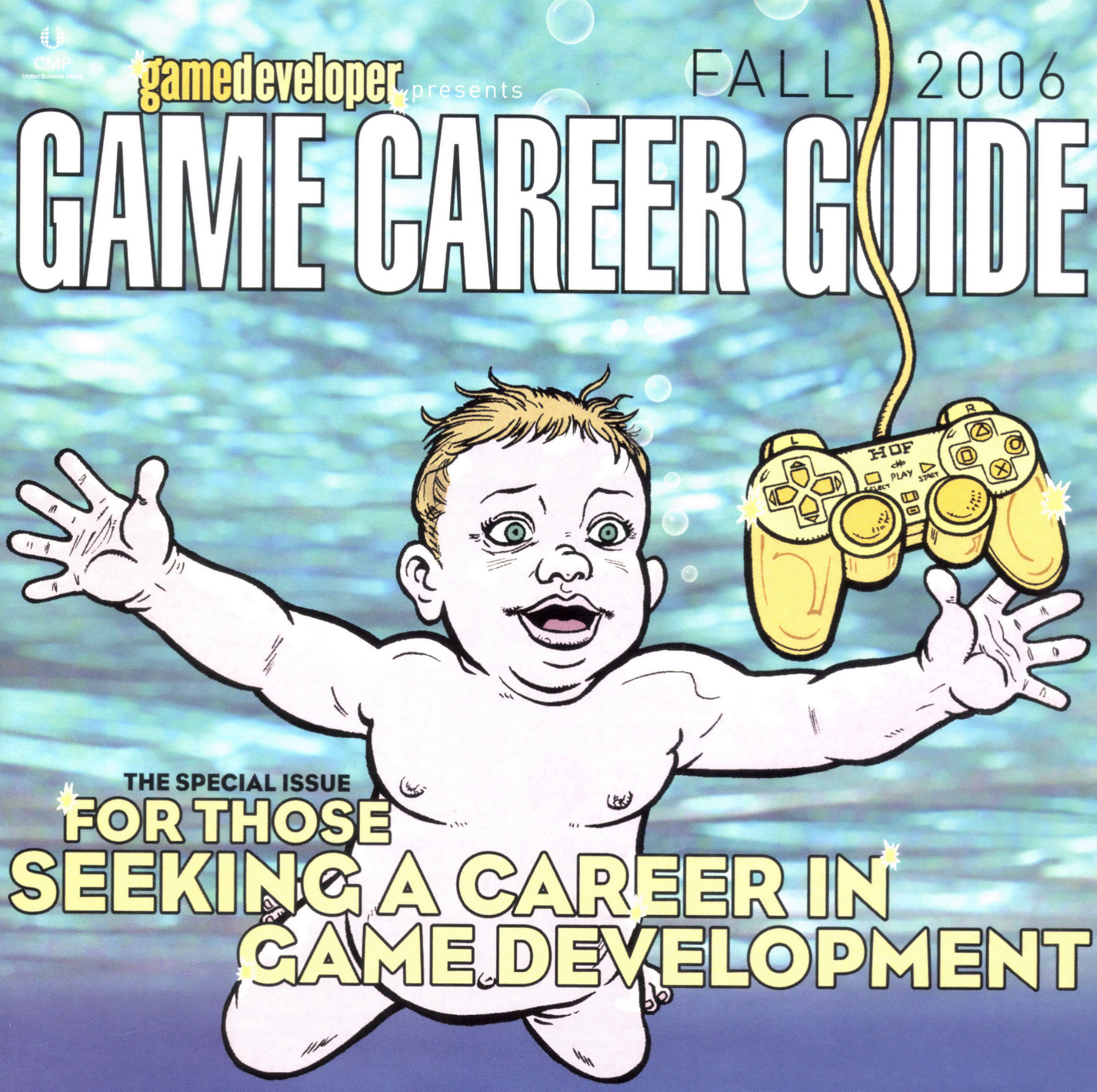

THE SPECIAL ISSUE

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>> SCHOOL DIRECTORY
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>> A DAY IN THE LIFE
THREE DEVELOPERS SPILL THE BEANS

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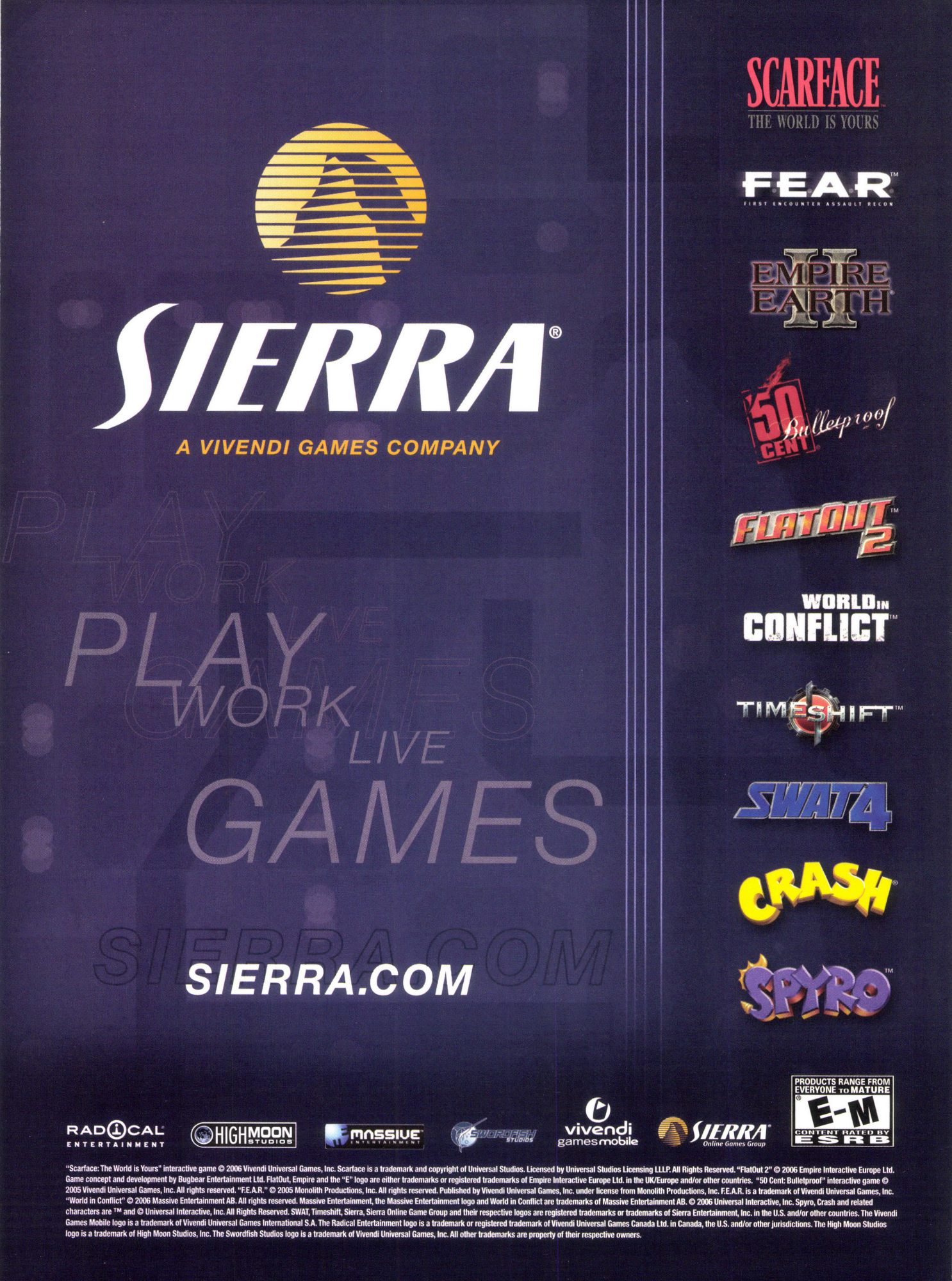

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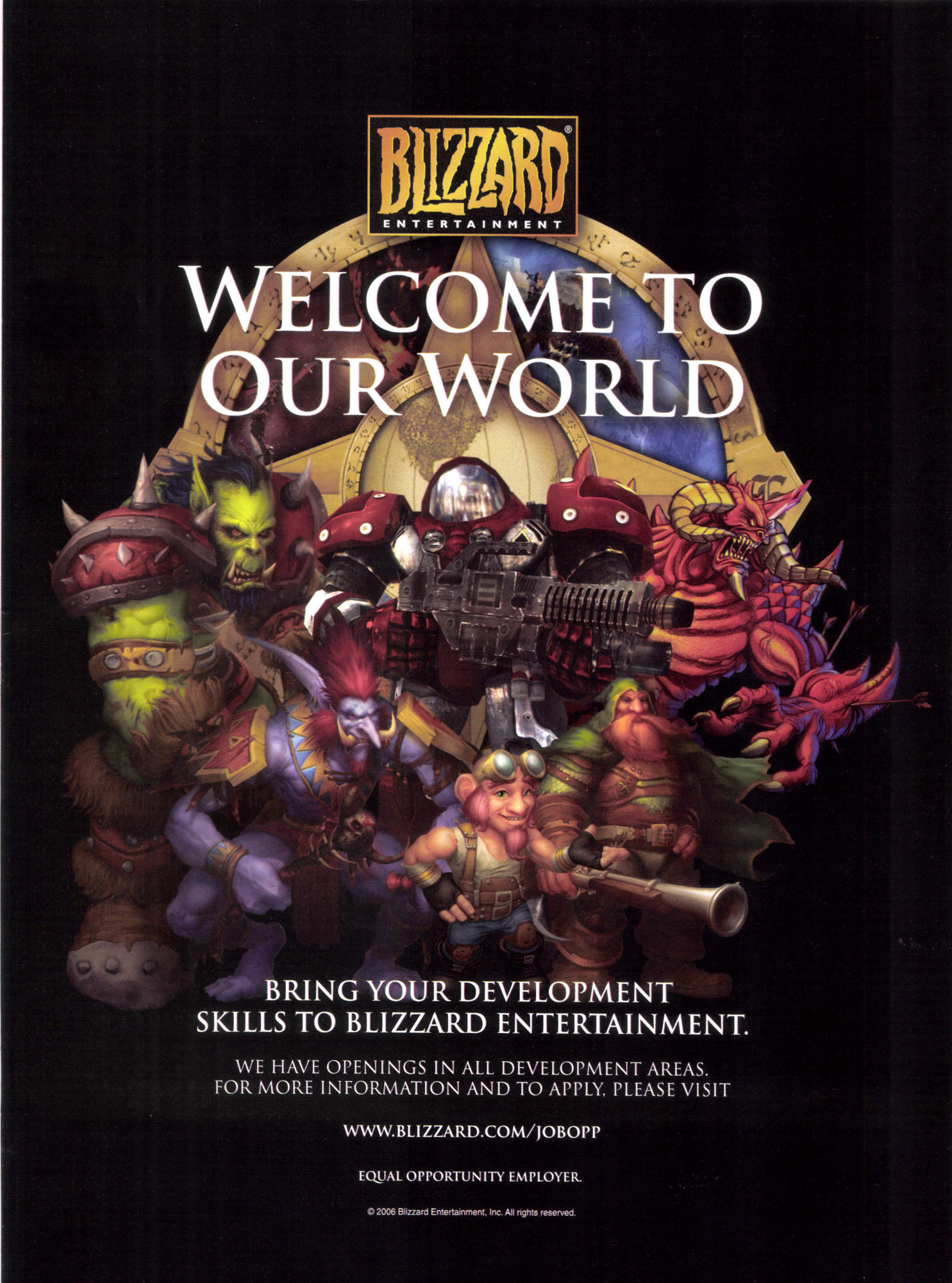
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GAME CAREER GUIDE

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You make video games for a living. You stroll into work at 9, code a level before lunch, chat with some games journalists out on the company veranda in the afternoon, beat your buddy at a game of pinball, then email your significant other to say you'll be home by 4:30. It's the easy life—right? Find out from three working professionals what day-to-day life is really all about in these developer diaries.

By Brad Bulkley, Tom Carroll, and Heather Kelley

51 STUDENT POSTMORTEM: CHASE THE CHICKEN

Making a game with your classmates can be trying, but ultimately is a valuable experience. Märt Lume and Chris Martin share the trials and tribulations of the game they made at the Art Institute of Vancouver, CHASE THE CHICKEN, with plenty of tips for anyone seeking a similar venture.

By Märt Lume and Chris Martin

25 A DESIGN FOR SUCCESS

With a low turnover rate, few open opportunities, and ferocious competition, a career in game design is hard to come by. What ultimately seals the deal, though, is your ability to land an interview and appropriately prepare for it. Having interviewed dozens of potential designers over the years, Jason Weesner shares his insight on what separates real potential candidates from the unsuccessful lot.

By Jason Weesner

36 THE STUDENT GAME EXPERIENCE: IGF FINALISTS TELL ALL

Students who build their own video game before graduating are immediately—and impressively—two or three steps ahead of their competitors in the job market. And it doesn't necessarily take a fully supportive academic environment to do so. Four fledgling developers share their experiences, from the cheap tools they used to the pros and cons of helpful professors.

By Jill Duffy

43 THE BIG MAN ON CAMPUS: EFFECTIVE NETWORKING IN THE GAME INDUSTRY

In this business, your word-of-mouth reputation is gospel. The game industry is still an extremely small community of people who know one another personally, so getting exposure early can make (or break) your career. Your name and face come second to what people have to say about you, unless you take initiative and start networking now!

By Darius Kazemi

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COVER ART BY EVAN DORKIN AND SARAH DYER

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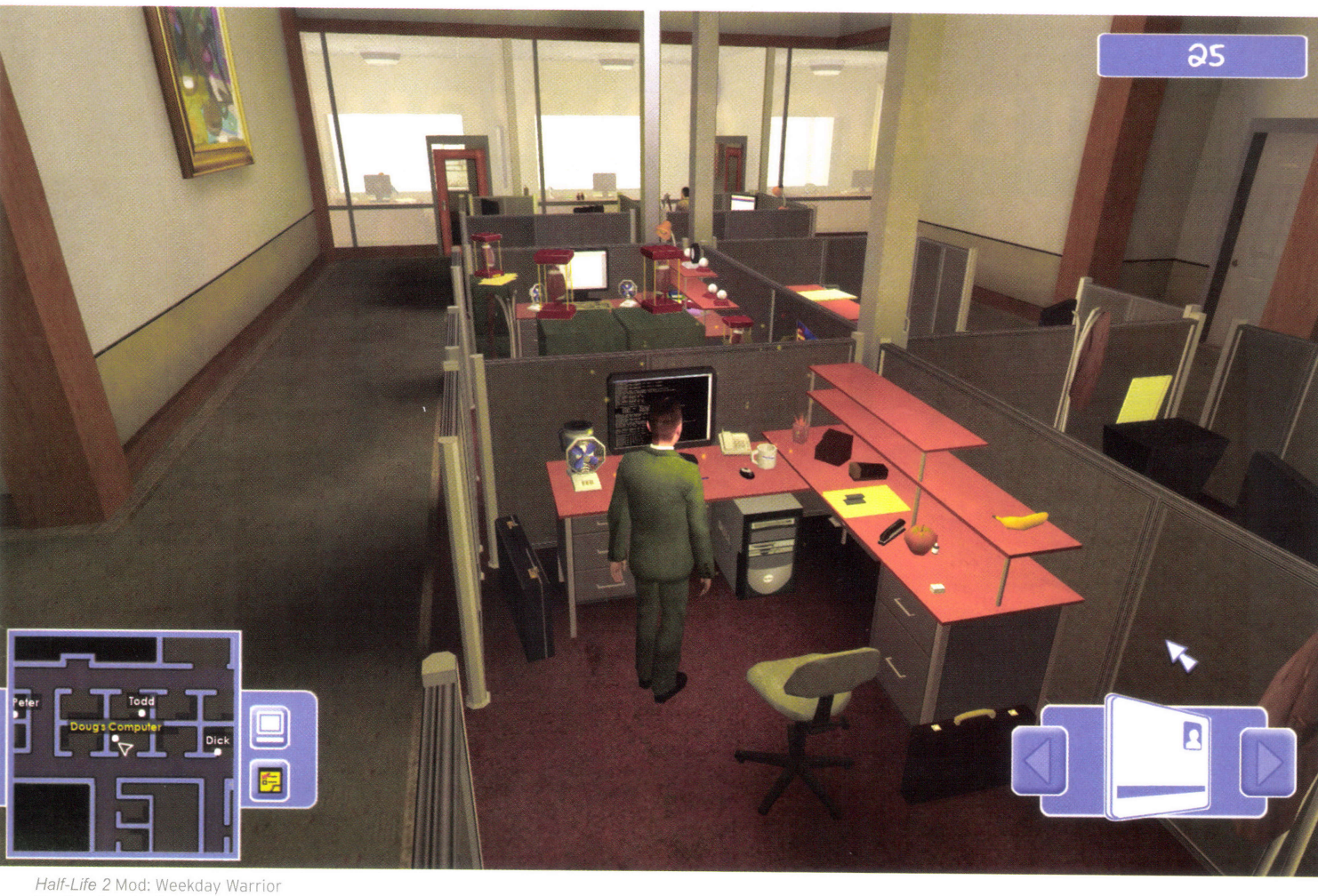

Half-Life 2 Mod: Weekday Warrior
Final project by Team "Cut Corner Company Productions"
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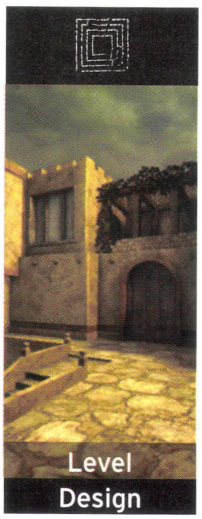

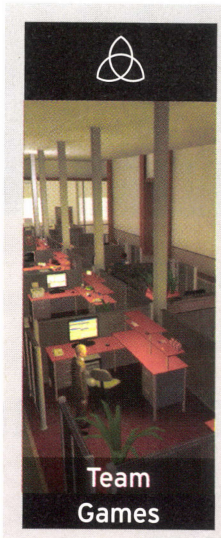

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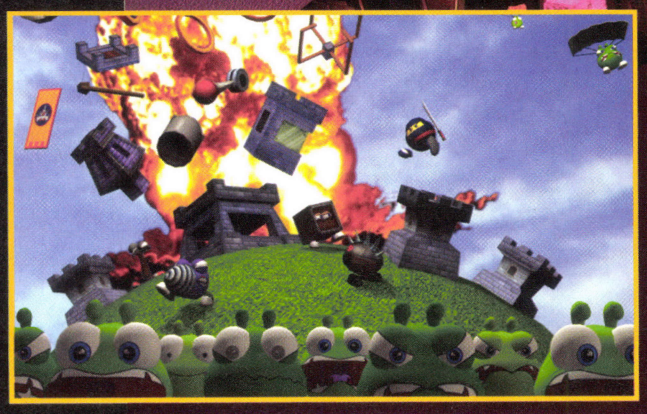

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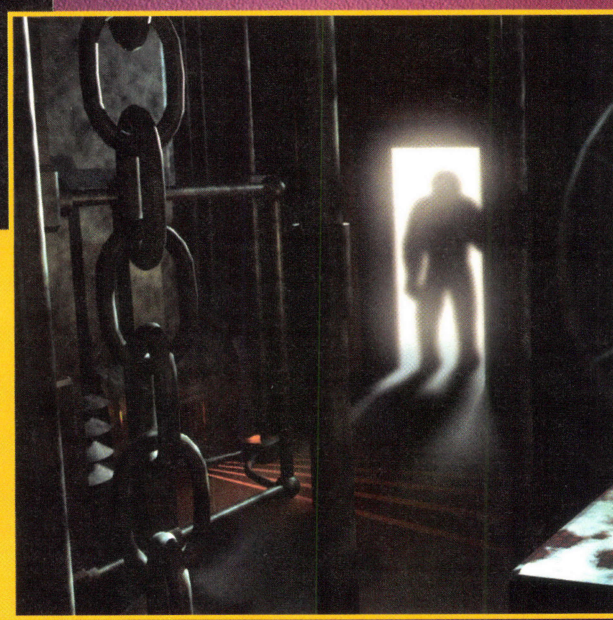

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- Learn about the game production pipeline
- See what a serious game education requires and why

The Content

At the core of each degree program are academic courses that are combined with extensive production experience, all of which have been developed with significant input from the industry.

The Faculty

The instructors at DigiPen are a diverse group of capable academics and accomplished industry professionals. Many have successfully worked in the industry and now passionately share their knowledge and experience in the classroom.

The Industry

Situated in one of the major game development communities in the world, DigiPen has developed strong relationships with many industry-leading companies who continue to recruit both interns and employees from the student body.

The Students

The diverse student body is a motivated group of individuals who have helped create an atmosphere where passion for the work, dedication, and excellence are shared and truly respected.

YOU ARE WHAT YOU PLAY

GAME DEVELOPERS ARE A UNIQUE BREED. FIRST, they are passionate about games. They've played card games, board games, paper-based games, early computer games, casual games, console video games, role-playing games, multiplayer online games, arcade games, games on their mobile phones, and maybe even some kind of sport—like foosball or badminton—or even more likely some combination of these, all their lives.

Second, they hold strong opinions about games. HALF-LIFE 2 was a step forward not only because of its innovative use of physics, but also its emotive character models. RESIDENT EVIL 4 showed the industry how to make a critically acclaimed sequel that reinvigorates a franchise. The success of TETRIS stems from the fact that it is extremely easy to learn, but difficult to master.

Third, game developers are some of the friendliest, kindest, and most laid-back people around. When I first entered this industry, I went through an adjustment period of not understanding why developers ignored my emails and phone calls while my colleagues had stellar success rates in these areas. What I didn't know is that although developers certainly want to be approached in a respectful way, they don't want to be treated like suits, and my approach was too formal. When spoken to like a new friend, however, they tend to respond in casual, informal, and downright chummy tones. You'll hear this voice in our developer-written features, such as "The Big Man on Campus" (pg. 43), an article that explains how and why soon-to-be developers should make friends in the industry as early as possible.

Fourth, despite their sometimes informal and laid back ways, developers are some of the most dedicated employees on the face of the planet. You'll see just what I mean in "A Day in the Life" (pg. 15), a diary of a typical day at work told from the point of view of a programmer, artist, and designer. These pros work long, hard hours, and not always for top dollar (see "Are You in Demand," pg. 11).

WHAT IS THE WAY, SENSEI?

This special annual edition of *Game Developer* magazine, the *Game Career Guide*, which is now in its fifth year, pays tribute to video game creators and their unique ways of being. Its primary goal is to induct new game lovers into the field of game development, deconstructing just how the industry and its people work so there are no (or at least fewer) surprises en route.

Whether you're a high school student, undergraduate, graduate student, employee of a neighboring industry (like computer graphics), or somewhere in between, our goal is to help you map out a clear career path, one that's sure to be both successful and exhilarating, but most importantly, one that's right for you.

Academically speaking, there are many roads that can lead to a job making video games. Less than 10 years ago, this was not the case, with all developers finding their "in" through ways that most other industries would consider non-traditional means. Now, there are trade schools, art schools with a gamemaking track, dedicated programs in more traditional four-year universities, and several other accredited ways for future game developers to get into the field. "Types of Schools" (pg. 33) looks at how these academic institutions differ in terms of how students learn and exactly what they do while enrolled.

GAME DEVELOPERS MAKE GAMES. PERIOD.

Schools that offer degree programs in game development sometimes allow or require their students to make one or more games during their academic career. "The Student Game Experience" (pg. 36) shares how three such games came into being. Both CLOUD and COLORMENTAL, two games available online, were created by students with the support of their universities. On the other hand, the third game, OCULAR INK, was developed primarily outside of school hours, according to John Edwards, one of the developers, proving that if you want to make games, you sometimes have to do so whenever and however you can.

For students and independent game creators, the cost of game tools doesn't have to be a major roadblock. Many software tools providers in the game space have free demo versions of their packages available online or offer simplified versions of leading software at a lowered cost for student use. If most great artists began with inexpensive graphite and flimsy paper, great gamemakers can launch their works of art using a free shareware 3D modeling package.

Let there be no excuses. Great game developers make games no matter what it takes. Adopting this attitude will get you far in your career.

—Jill Duffy, Managing Editor

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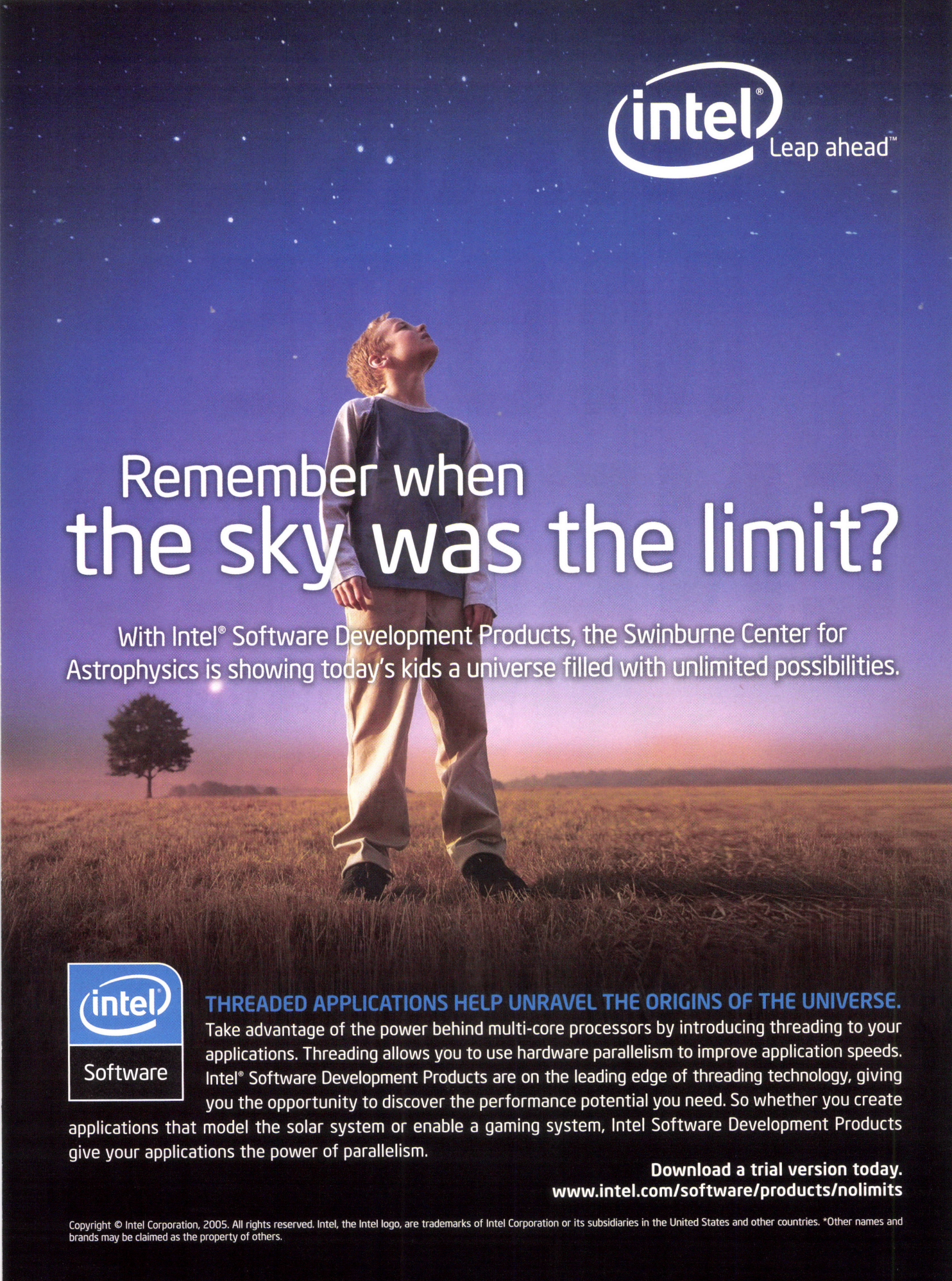
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ARE YOU IN DEMAND?

HOT JOBS FOR BIG BUCKS IN THE GAME INDUSTRY

YOU'VE HEARD IT ALL BEFORE: JOBS IN GAME DEVELOPMENT ARE HARD to come by. Competition is fierce. Personality counts (since team-structured environments are the norm).

But what you might not have heard before is that the majority of game developers in the field aren't doing what they're doing for the money. The average game developer salary isn't astronomical—it's comfortable, but not astronomical. It's about $70,000 per year.

How much money game creators make is one of the biggest misconceptions students have about the working industry, says Professor John Small, a long-time industry professional (Criterion) and game development instructor at Savannah College of Art and Design.

Another issue new recruits must tackle is to decide what job title they're after. Designer or level designer? Rigger or animator? AI programmer or Java developer?

These next few pages of 101 material are designed to give you a crash course in salary and job title expectations. We've mapped out some of the job titles that have been in greatest demand over the last few months with an emphasis on the ones that accept entry-level candidates. Knowing which positions game companies are recruiting most often these days will open up more opportunities for your success and decrease the length of time it takes you to start working.*

—Jill Duffy

PROGRAMMING

Average salary for programmers/engineers with 3 or fewer years' experience: $52,989.

Programmers tend to have consistently strong starting salaries and are paid well relative to other positions in game development. In 2005 salaries for programmers with less than 3 years' experience stayed nearly the same since 2004, indicating a steady need for entry-level programmers, but no wild boom in demand.

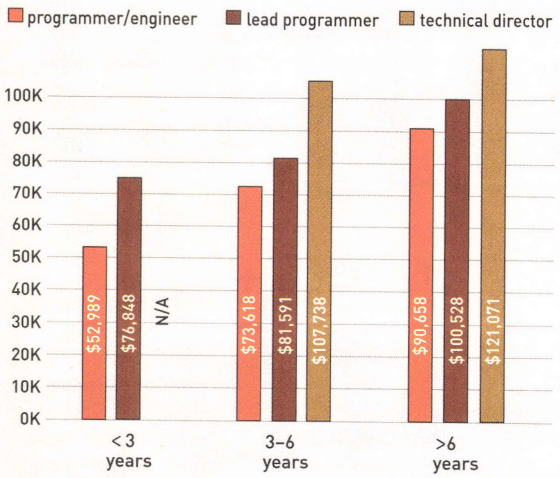
Robin McShaffry, vice president of operations at Mary-Margaret.com, a game developer recruitment agency, agrees that there is a constant need for programmers and engineers. "Engineers are always in demand, both entry-level and experienced," she says.

Networking engineers, as well other "low-level, close-to-the-metal" engineers who have a deep knowledge of game development tools, are also typically in demand. Additionally, McShaffry recommends game programmers think outside the console box and explore options in sub-sectors of the industry, such as games for mobile phones, PCs, or casual players.

"Wireless is really growing. We're seeing a lot more demand for those who can handle Java and BREW, specifically BREW," she adds.

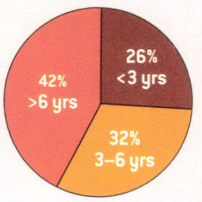
Although $50,000 a year sounds like a healthy starting paycheck, programmers are commonly ineligible for overtime pay (though some state laws vary), a contentious topic in the game industry, where putting in extra hours, even on weekends and holidays, is sometimes an unfortunate norm. (See "Unionize Now?" *Game Developer*, March 2005 for a complete discussion.)

Programming salaries per years of experience and position

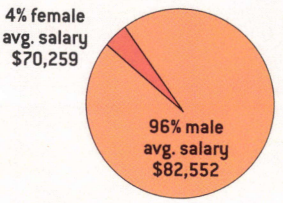


Average salary across all levels of experience
$82,107

Years experience in the industry



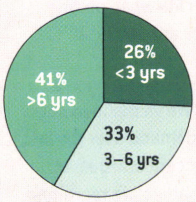
Average salary by gender



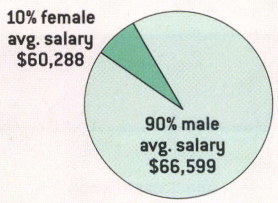
* The statistics contained in this article originally appeared in the April 2006 issue of *Game Developer* magazine, where information on the survey's methodology can also be found. *Game Developer* thanks Audience Insights for its support in carrying out the survey.

ART AND ANIMATION

Years experience in the industry



Average salary by gender



Average salary for artists and animators with 3 or fewer years' experience: $45,675.

Salaries for artists and animators rose steadily since 2004 by between $3,000 and $5,000 for all titles and level of experience, indicating stability in the field. Newbie artists and animators took in about $3,000 more; mid-level artists brought in about $5,000 more; and those with 6 or more years experience earned about $4,500 more than in 2004.

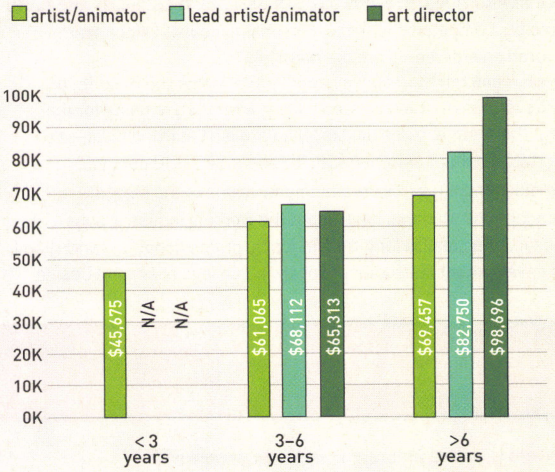
Recruitment agency Mary-Margaret.com finds that the most commonly asked for artists are human motion animators, according to McShaffry, and students leaving university with these skills will do well in the job market. However, McShaffry also "absolutely recommends" that game artists hone their fine art skills; mastering basic skills, like sketching and color theory, in addition to learning a 3D animation and modeling package.

Game Developer contributing editor and co-founder of Giant Bite Inc. Steve Theodore advises students to also learn one 3D package deeply, then add another one to their repertoire. "No matter how much you like your primary package, being able to function in a second one will teach you a lot more about what's under the hood than any class on graphics ever could. Besides, it makes you twice as eligible for jobs," he says.

Women should feel more encouraged than ever to apply for jobs in the art department. A growing female presence was particularly noticeable between 2004 and 2005, with about 10 percent of jobs in game art now held by women as opposed to the less than 7 percent the year prior.

CONTINUED ON PG 86

Art and animation salaries per years of experience and position



Average salary across all levels of experience
$65,986

national trends in game development

AS A GAME DEVELOPER, YOU'RE likely to earn the highest possible salary if you live in California, New York, or Washington state. However, you're almost twice as likely in Washington (71 percent) than California (38 percent) to own your own home. And New York state residents are even worse off in terms of homeownership (26 percent), despite the fact that New York and California account for the highest salaries on average by state.

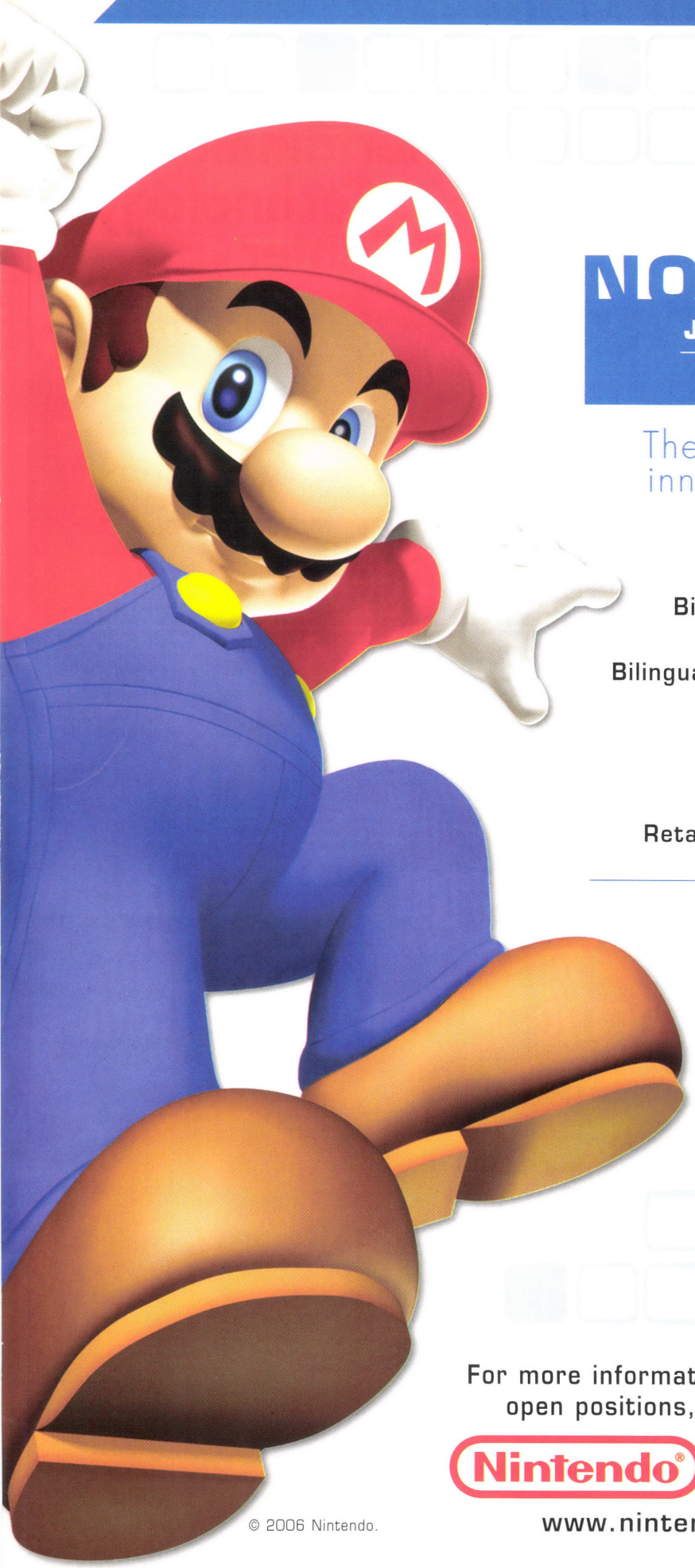
As a game developer, where you live greatly affects your potential salary cap as well as your cost of living. Here's another example: Texas ranks only sixth in terms of top-paid developers by state, yet 60 percent of Texan game developers own their own homes.

If you don't live in San Francisco, Los Angeles, Seattle, or Austin, all is not lost. Game development has been spreading into new territories, creeping into states with a low cost of living and tax breaks for technology businesses. Florida, Utah, Virginia, Maryland, North Carolina, and Arizona all house a growing scene.

A neat resource that we found useful (not to mention fun to play with) is the interactive map at www.gamedevmap.com. Created by Gaurav Mathur, art department director at Factor 5, GameDevMap is an interactive map of the world that shows the locations of game development businesses and organizations.

Users click on a city marker, and a list of publishers, organizations, and developers (console, mobile/handheld, and online) appear with their URL and city, state, and country. At a glance, the map illustrates how pervasive the industry is becoming both within the U.S. and globally. So whether you live in Tel Aviv or Oulu, Finland, you can easily discover what studios and IGDA chapters exist in your area.

—Jill Duffy



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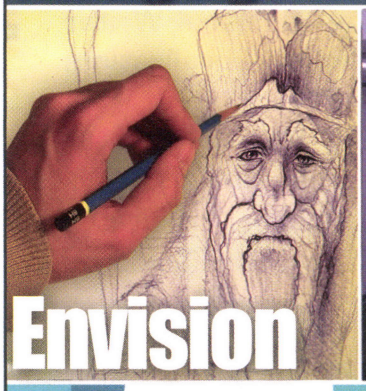

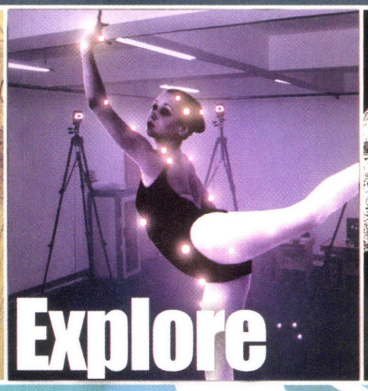

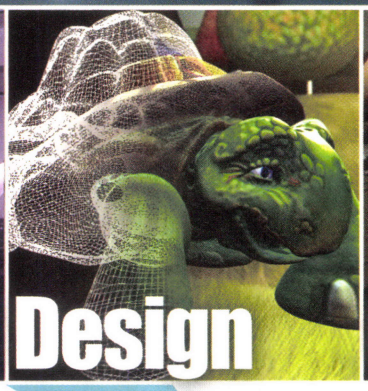

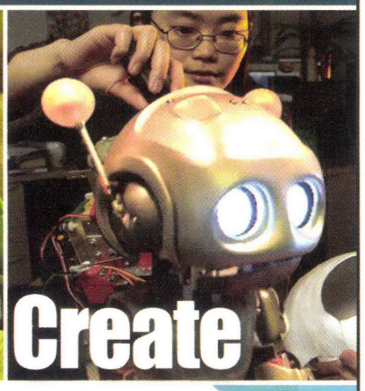

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>> brad bulkley,
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A DAY IN THE LIFE

A BRIEF WALK IN THE SHOES OF THREE GAME DEVELOPERS

PROGRAMMER

NEVERSOFT IS AN ENERGETIC, FUN, AND DYNAMIC PLACE, AND I've been lucky enough to work here for several years. As the lead programmer on TONY HAWK'S PROJECT 8, my job is a little different than it was when I started out here. I now spend a good portion of my day meeting with other team members, answering questions, and firefighting (quickly fixing high-priority bugs). Of course, I still do my share of programming as well. I'm part of the Skate programming team, which creates all the code specific to our skateboarding games. With each new release we reinvent the series, which means there are always interesting new problems to solve.

8:59 AM I arrive to start my day, having just returned from a nice vacation. My office, like all offices at Neversoft, has no door and is shared with several other team members. I currently sit with four other programmers in an oversized room that's big enough for eight. The first thing I do is grab the latest code and data, and catch up on my email. Riley, the company president's dog and our unofficial mascot, comes by to see if he can have some of my breakfast. Nice try, Riley.

9:32 AM Today is Wednesday, which means tomorrow is burn day. Each Thursday we burn the game to disc, and we make sure the burn is completely stable before we leave. Why bother making discs when we're several months away from shipping? It's one of Neversoft's secrets to shipping our games on time, every time. If the burn always works, there are no big surprises. Making a master disc is no different than making our weekly burn. I build the final version of the code now as a sanity check. Everything looks good.

9:38 AM I have a quick meeting with Derek about memory. Derek is the programming producer on TONY HAWK'S PROJECT 8, and he makes sure the programming team stays in sync with the other teams. Among other things, Derek maintains the programming schedule and makes sure bugs don't slip through the cracks. Lately we've been running out of memory because several assets are over budget. I free up some emergency memory while Derek talks to the other teams about reducing the size of the data.

9:54 AM It's time to meet with a couple of our newer programmers and see how things are going. All new employees get a 90-day review, which gives them a chance to give us feedback. We want Neversoft to be the best workplace around, period.

10:30 AM Last call for lunch! Lunch is free at Neversoft, and we have four restaurants to choose from today. As usual, this is the most stressful part of my day. I quickly narrow the field to two choices, but now it's down to the wire. Should I order Thai noodles or Indian food? It's a tough call, but I make a command decision. You can't go wrong with Thai.

11:10 AM I've already looked over several resumes today for prospective programmers. We receive a huge number of resumes, and each one gets personal attention. I don't need to see a perfect GPA or laundry list of scholastic achievements. Those things do help, but I want to hire people who simply love making games. If you convince me of that, you're off to a good start. Of course, I want to see strong programming and communication skills as well.

11:40 AM I take some time to respond to several bugs. As lead, my biggest concern is that everyone here can run the game at all times. If something breaks the game during the day, one of the programmers will drop what he or she is doing and fix it.

12:19 PM My free food has arrived, but was Thai the right choice? It was indeed. Most people eat at one of the tables in our massive kitchen. During lunch you're likely to spot some people skating on our in-house ramp, playing Ping-Pong, or in heated multiplayer game battles. Come see me if you want to lose at TETRIS DS.

1:30 PM We're updating our build system, and it's time for me to install the latest tools. Years ago, everyone built all the code and data on their machine. Now we use distributed builds, spreading the work across all our computers. A full rebuild used to take several hours. Now it takes minutes.

1:40 PM I continue my memory audit from yesterday. I regularly examine the contents of system memory, making sure everything is accounted for and within budget. This is a small amount of effort, but it has huge benefits. You'd be surprised at how much memory can disappear if you're not looking. Today is especially productive. With one change to the way we allocate level data, we save almost 20MB.

BRAD BULKLEY

Brad Bulkley is a lead programmer, and has worked at Neversoft since 2001. He learned his skateboarding lingo while developing TONY HAWK 4, THUG, THUG 2, and AMERICAN WASTELAND. He earned his spurs while making GUN.

Brad Bulkley's desk neighbors several others in an open office environment.

2:30 PM Some people are having problems running cutscenes, which means it's time for more firefighting. Luckily this turns out to be an easy fix. As you can see, my day can be somewhat disjointed, but I love the rush of dealing with several problems at once. It's satisfying to see it all come together.

2:55 PM Another problem has come up, this time with skinned objects (human characters). I enlist the help of Andy, one of our engine programmers. After some digging, we discover that header information for the skin data is bigger than expected.

3:35 PM I have a quick meeting with Anthony, our file system guru, about how we're going to use the hard drive on certain systems. We want to cache files so the game loads more quickly for people with hard drives. That's straightforward enough, but we want to hide the caching so no one has to stare at a loading screen.

3:42 PM The artists would like more memory for the sky geometry, and they come to me asking for help. We work out a trade: steal a little memory from textures to make room for the extra geometry. This kind of thing is actually pretty common. Everyone here wants to make the best game possible, so people will gladly give up some of their own memory for the greater good.

4:08 PM I meet with some of the newer producers and teach them how to read a callstack. It's just a general overview, but it helps them understand who should investigate a bug. At Neversoft, everyone is encouraged to learn about all aspects of the game, not just his or her specialty.

4:45 PM We're creating a new animation system from the ground up for PROJECT 8, and it requires the coordination of a lot of people. Today I do the rounds with Joel, the company president, and Brian, the project lead. We're looking at performance. In some cases the skater is playing over 30 animations at once, and it's sucking up valuable CPU time. It turns out we are overlapping several unnecessary animations, and turning those off gets us back to a more reasonable level.

5:15 PM The intro movies don't play right now, and I need a new feature. It's funny that something so simple (just play an intro movie when the game boots) can become such a large task. It turns out we had no way of waiting for a movie to finish, nor any way of even knowing if the movie was finished. I don't waste time before asking for help. Dave, our intrepid technical director, is happy to oblige.

6:11 PM The movies are done, and it's time to go home.

—Brad Bulkley

ARTIST

MY PRIMARY RESPONSIBILITY AT ROCKSTAR SAN DIEGO IS TO build buildings that will populate the environment of the game I'm working on. To do my job I've got to keep up with various levels of technology, all the way from simply making cool stuff in Maya (based on detailed photo reference) to applying various shaders to these objects so that they look good within the context of the finished game.

8:15 AM Nosing my Mini Cooper into a parking space, I have already been awake for longer than I'd like. 6 a.m. is when my five-year-old son usually shatters any notion of "sleeping in." I get a quick cup of coffee and scan CNN.com for the headlines while booting up Maya and opening various visual databases that guide my work.

8:25 AM I spend the next few hours modeling and texturing the building I have on my plate. Each building starts off relatively simple, but as the hours pass I add detail in a responsible way, concentrating on areas where the player will be able to see it and economizing farther away from the camera. Thankfully, the work I am doing is relatively modular, so I am able to spend a little more time on smaller components because I will be able to mirror, stack, or tile them to complete the finished asset. The modular approach also enables me to spend a little more time on more complex and unique sections of each structure, including the ground floor entrance and any detailing that makes the building stand apart.

This may sound odd, but in order to keep focused on the modeling job at hand, I often have something playing on the portable DVD player that sits next to my monitor. Today the offering is purely professional; the program du jour is one of the Gnomon Workshop's DVDs: *The Techniques of Scott Robertson: Creating Unique Environments*. The most important part of this diversion is that the program can't be so interesting that it diverts my attention from my specific job. I like the Gnomon DVDs because they are narrated by professional artists and you can simply listen to what they're saying, processing it without having to actually look at the screen. However, there are movies that serve the same purpose. Yesterday, for instance, I popped in a recent purchase: *Invaders From Mars, Special 50th Anniversary Edition*. Anyone who has seen that film knows it is best "seen" without looking at the screen.

12:00 PM Anyone who knows me understands that I am obsessed with writing and 2D artwork. That's why, even though

TOM CARROLL

Tom Carroll is an environment artist at Rockstar San Diego. He attempts to stay as far away as possible from the "bleeding edge" of anything, especially technology, which explains why his favorite game is still SPACE WAR.

the office is close to various restaurants and malls, and even the beach, I pack my own lunch and spend the hour poring over a draft of a story pitch, finishing a perspective drawing, or practicing my character sketching.

1:00 PM The second half of my day is usually exactly like the first half: continuing to build the asset that's currently on my plate. Today, however, there is a review session that will include all of the assets I logged into the system during the past week. Reviews are very informal and because what I build has to conform to the rigors of the photo reference, they are usually about small tweaks of the work to provide that little extra bit of realism needed without sacrificing poly counts. I jot notes in my notebook, in order to use them as a picking list later when I revisit the files and make the changes. I also make sure to email my environment supervisor when the work is done, reiterating what the changes were so he doesn't have to guess.

3:30 PM The end is in sight on the building I am currently modeling. As always, the lobby area is the most intense because there are a lot of details to infer from the source photographs. After you've finished the tenth building, however, you begin to recognize ways that the architects themselves have structured their work. Review sessions have reinforced the notion that we as Rockstar artists have the ability to diverge from the photo reference if it will help us to make the finished building more economical as a video game asset. Of course, sometimes it is simply a matter of necessity to invent details if the photos don't show them well enough.

5:00 PM With the asset finished, textured, and set up with a correct hierarchy, I save it into the correct location and check it into the asset management software. And because we're pretty much a paper-free office, I need to update the project database to show that the asset is completed and a new one is selected.

5:50 PM On average, my work day is cast in stone. Because my wife sometimes works evenings, I leave my desk a bit early on those days to pick up my kids before her shift begins. To make up for it, I work a little later when I can, and this is one of those days. Some of my co-workers take off, others continue on even as I do. The next asset begins to take shape on my screen and it feels good to get ahead on it.

7:00 PM With the sun dipping low over the horizon, it is the "golden hour" that so many painters swear by, a time when the light is full and rich and the shadows are long and dramatic. Standing atop the landing outside the door, I feel like I should take a few moments to capture the asymmetrical pattern of the cars remaining in the parking lot below, but my family awaits and the joys of dinner, homework, baths and (eventually) bed beckon.

—Tom Carroll

DESIGNER

MY NAME'S HEATHER, AND I'M A GAME DESIGNER AT UBISOFT Montreal. Design is one of the hardest game professions to pin down; our domain ranges from basic control mechanics to huge overarching game structures, and everything in between. My current assignment is with one of our PSP development teams, working on an original license-based title coming out later this year. On a smaller team like this, designers may take on multiple responsibilities. For this project, I'm responsible for game narrative, characters, sound, and writing. We're creating some completely new characters within a licensed universe, including the player characters, so it's quite a responsibility!

The bulk of any designer's daily work depends on the phase of her game's development: preproduction, production, testing, and so on. Right now our core team is gunning toward our FP, which stands for "first playable"—a version of the game with sample gameplay representative of all the major game systems.

10:00 AM The first thing I do any morning is check email to learn any new information from other team members, such as concept art or animation that's been finished, read and respond to questions from programmers about the details of a certain feature, communications from management about schedule, marketing requests, and so on. One part of my job is to ensure all our game's elements fit within the game's license, so I may also have emails from the licensor to respond to. I also try to keep up on any events in the industry by skimming some news sites.

11:00 AM After answering emails I check my personal task list and choose one of the high priority tasks. Today I need to write the tech specification for the "barks" of the lead characters and AI—the programmatically-driven speech that gives both player feedback of what's going on, and develops a given character. This task is primarily to describe in concrete terms for a programmer when and how often each type of bark should play. For instance, the player character's "pain" bark should play every time the character takes damage, and choose randomly from a bank of 10 sounds, so that the player doesn't have to hear the same one over and over. But for events which don't need to trigger as often, such as a hint bark for players that are lost, you would specify a frequency expressed as a percent of the number of times the triggering event occurs, and request that percentage be stored as an external variable (such as in an INI file), so that designers can change the frequency of the speech during testing. So, I spend a few hours going through the entire dialog and noting the rules for each speech event type.

12:30 PM I try to get the task done before lunch so that I can

HEATHER KELLEY

Heather Kelley is a game designer at Ubisoft Montreal studios, where she has worked for two years. Prior to her work at Ubisoft she was a designer at Ion Storm, a designer/producer at Human Code, and director of Online at Girl Games, all in Austin, Texas.

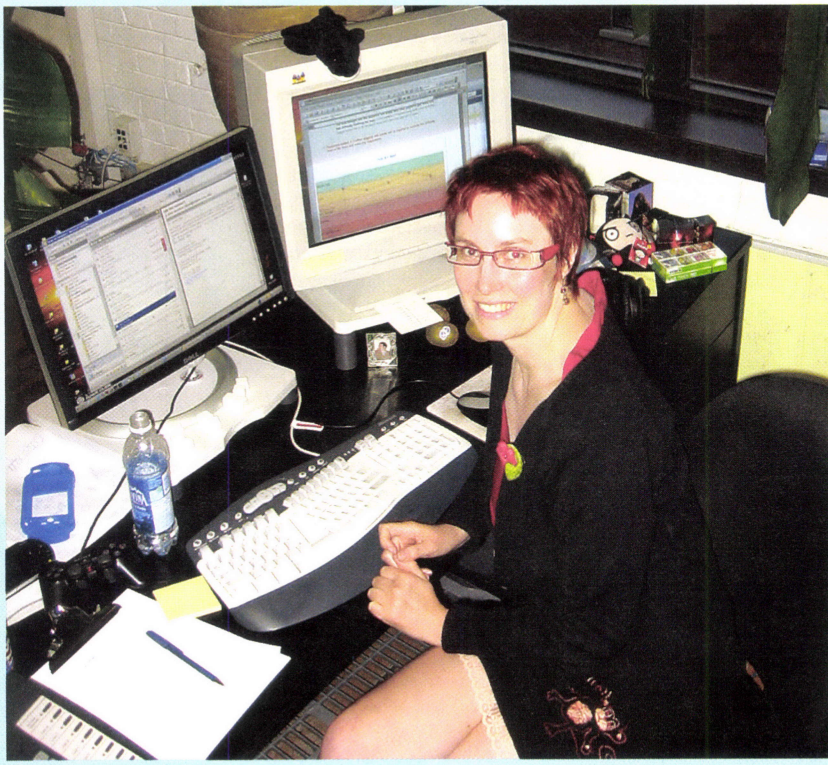
give it to the AI programmer for review before he needs to start implementing it. After I send it, it's time to go to lunch. Lunch break could mean a quick meal in the employee lounge while reading a magazine or watching "futbol," or a trip to one of the dozens of restaurants in the neighborhood. On sunny days I can find a restaurant with a terrase (that's Quebecois for patio) or just sit with my sandwich on the steps of a church down the street, picnic style, and chat with friends passing by.

1:30 PM Back at the office, my next task is to write the on-screen text for the pause menu. I have to make sure the text is short and to-the-point, because there isn't much space on screen and we need to leave plenty of room for the words when written in other languages. Our gameplay uses a few interrelated modes, in which a button will have slightly different behavior. For instance, when steering the character through the environment, left and right shoulder buttons turn the camera, but when you engage in combat you lock onto an enemy and can strafe around it; in this mode the shoulder buttons change targets left and right. I talk for a few minutes with the menu graphic designer and programmer to decide how to show all this information on the pause menu. We decide to put the controls for both modes on the same screen, but use two different colors that represent the two game modes.

3:00 PM I'm called over by one of our cinematics animators, Martin. Today, Martin is working on a scene that takes place between our main characters. He has the storyboards and the recorded dialogue as reference, but he needs to know more about the emotional underpinnings of a particular line so he can animate both of the characters with the right body language and gestures. We talk over the scene to find a solution that makes sense, both for the characters and for the schedule—he's supposed to finish the animation today. We read the lines out loud, and I demonstrate what kind of physical gesture I think the character might make in the scene. You'll see that pretty often when talking about animation—sometimes the fastest way to explain a movement is to do it yourself!

3:30 PM Next I meet with Tony, the audio director, to listen to some processed dialog samples of another character, which were just created by the sound studio. We need a vocal quality that fits within the license's style, but is unique enough to quickly identify as a specific individual, with a specific personality. First we load the samples onto a PSP to hear how they sound on the target playback medium. The high frequencies chosen by the sound designer come through really well on the PSP's speakers. We talk about the player character's personality and how we can get a good range of expression using certain kinds of modulation.

4:00 PM Now I have some time to get back to my desk, and check the afternoon's emails. David, the localization manager for our game, has sent me a short list of errors for correction in the English script. As keeper of the script it's my duty to make these changes—if I deem fit. This is where all my knowledge of the license comes in handy. For instance, one of the "errors" found is simply a reference to a fictional location. After reviewing his list of changes, I check the script out of the asset database, make the necessary corrections, and message David to explain what I did and didn't do.



4:30 PM My other FP-related task today is to write the player objectives for all five of the maps that will be included in this milestone. After reviewing the game architecture documents that are on file and compiling a list of expected objectives, I meet with each of the level designers working on an FP map and confirm or adapt the wording of the objective to fit the gameplay. It's important to know when and where the player will receive each objective, what triggers an objective's receipt, and what triggers complete it.

5:30 PM Lastly, I pick a final writing task for the day. One of the best parts of my project is that we're able to add new material to the licensed universe. A good example of that is our technology—the weapons, vehicles, and so forth used by the characters in the game. For the main character's weapons, our lead designer Phil determined their basic behavior and set some initial statistics for each, and our art director Arman determined the look of the guns based on their functionality and our game's setting and style. But we also need to explain where it came from, who developed it and why, and make sure it fits organically within the licensed universe, since in the end it will grow that universe. That's my job. For this task I do a lot of research on the internet and in reference books. This research gives me ideas about how our technology (such as the player character's weapon) fits within the overall world. It even involves some character development—based on who the character is, what kind of weapon would she have, and why? I combine these elements into a short description, and along with images of the weapons, send it to our producer at the licensor to get approved.

7:30 PM That draws my day to a close, and I hop on my bike and pedal home.

—Heather Kelley

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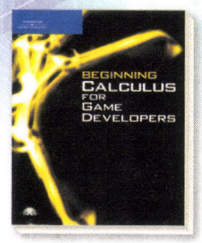

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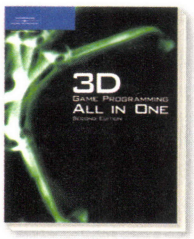

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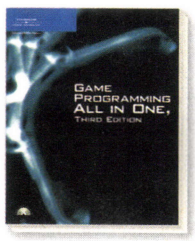

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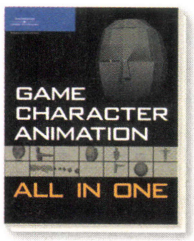

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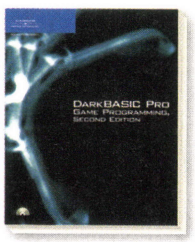

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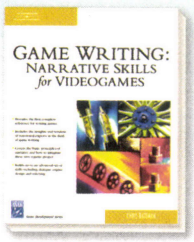

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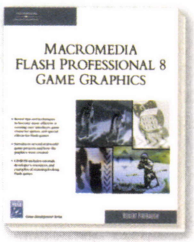

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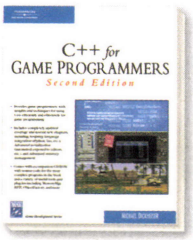

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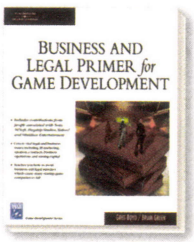

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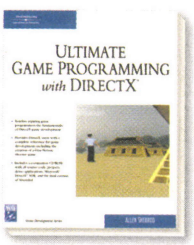

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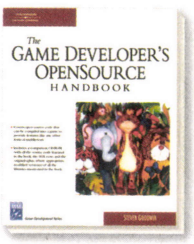

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Character designs: Aaron Fry

FACT SHEET

WHO TO KNOW AND WHAT TO DO IN THE GAME INDUSTRY

EVENTS

One of the best ways to become better informed about the video game industry is to attend its major events—here's a primer.

E3 EXPO

www.e3expo.com

The Electronic Entertainment Expo (E3), has been an industry staple since 1994. As the most highly attended industry event, E3 attracts tens of thousands of game professionals to southern California each May. Here, developers and publishers unveil their upcoming games, party with colleagues, and savor the heady atmosphere. The week-long affair is owned by the Entertainment Software Association and is closed to the general public.

GAME DEVELOPERS CONFERENCE

www.gdconf.com

In the industry, there's no mistaking these three letters: GDC. The Game Developers Conference is a professional conference held annually in the San Francisco Bay area in March. Educational or career-enhancing conference sessions and keynote speeches mark the daylight hours, while the Game Developers Choice Awards, Independent Games Festival, and a smattering of lively parties round out the evenings. GDC is owned and operated by CMP Media, which also owns *Game Developer* and Gamasutra.com.

AUSTIN GAME CONFERENCE

www.gameconference.com

The Austin Game Conference is a mid-sized event featuring professional lectures and workshops for game developers, students, and people trying to get a foot in the door. What makes it unique is its emphasis on local development trends, which in Austin means massively multiplayer and other online games. The conference, which is held in the early fall, is now in its fourth year.

SERIOUS GAMES SUMMIT

www.seriousgamessummit.com

The Serious Games Summit, also owned and run by CMP Media, was created to support those who make or use serious games—or video games made for non-entertainment purposes. Professionals from the military, health care sector, and educational institutions join game developers and publishers at this informational summit held near Washington D.C. every fall.

D.I.C.E. SUMMIT

www.dicesummit.org

Created by the Academy of Interactive Arts & Sciences as an exploration of the creative process in game development, the D.I.C.E. Summit began as an industry workshop event in 2003, and includes both high-level business talks and a yearly game development awards ceremony. The event is held in Las Vegas every February.

TOKYO GAME SHOW

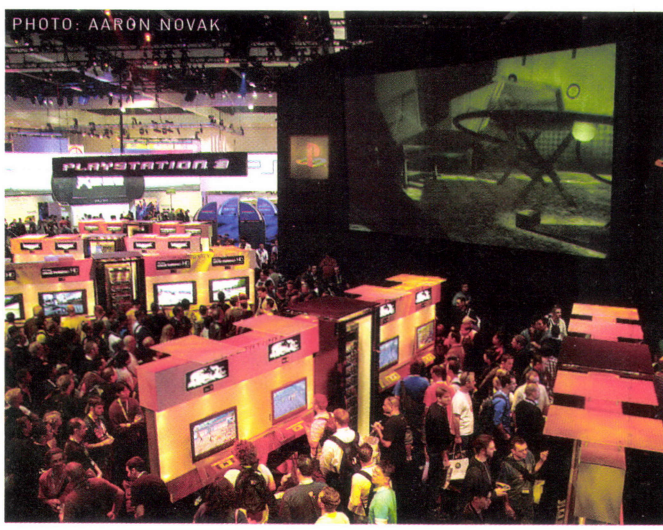
http://tgs.cesa.or.jp/english

Japan's consumer oriented Tokyo Game Show welcomes the general public with the same open arms that it welcomes industry professionals. Organized by the Computer Entertainment Supplier's Association and Nikkei Business Publications, the event takes place in Chiba City, just outside Tokyo.

GAME CONVENTION

www.gc-germany.de

Leipzig, Germany is home to the Game Convention. Held this year in late August, the show attracts professionals from around Europe because of its comprehensive show floor, where developers can test out new technology.



E3 2006.

CHINAJOY

www.chinajoy.net

China Digital Entertainment Expo and Conference, or Chinajoy, aims to be the Chinese equivalent of E3 or the Tokyo Game Show. Chinajoy, which encourages international gamemakers to move into the Chinese market, is organized in part by the government of China. The 2006 show will be held in late July in Shanghai.

LONDON GAMES FESTIVAL

www.londongamesfestival.com

The London Games Festival, a new industry event as of 2006, plans to launch during the first week of October. The event will comprise a number of smaller events, including GDC London (which organizers say will be the European equivalent of GDC), the BAFTA Awards (media awards given by the U.K. organization of the same name), and a London Game Career Fair.

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ORGANIZATIONS

These associations help advocate, regulate, and advance the industry. Here are the big names you should know.

IGDA

www.igda.org

The International Game Developers Association (IGDA), a non-profit membership organization, is a community of professionals dedicated to the art, science, and business of producing video games. Local chapter meetings are held every few weeks in a number of geographic locations, and members-only parties are usually slated during major industry events, such as GDC and E3. Membership prices are highly reasonable: $48 per year for developers and $30 per year for students.

ESA

www.theesa.com

The Entertainment Software Association (ESA) presents a common front on video games to the general public. Backed by president Doug Lowenstein, the ESA focuses on the business side of game development, pursuing issues like game piracy, violence in games, and industry profitability. It is a membership organization, but unlike the IGDA, members are publishing companies, such as Activision and Electronic Arts, not individuals.

ELSPA

www.elspa.com

The Entertainment & Leisure Software Publishers Association (ELSPA, pronounced ELL-spa) operates as the united front for the U.K.'s game industry. It operates the annual International Game Summit and sponsors the Edinburgh Interactive Entertainment Festival.

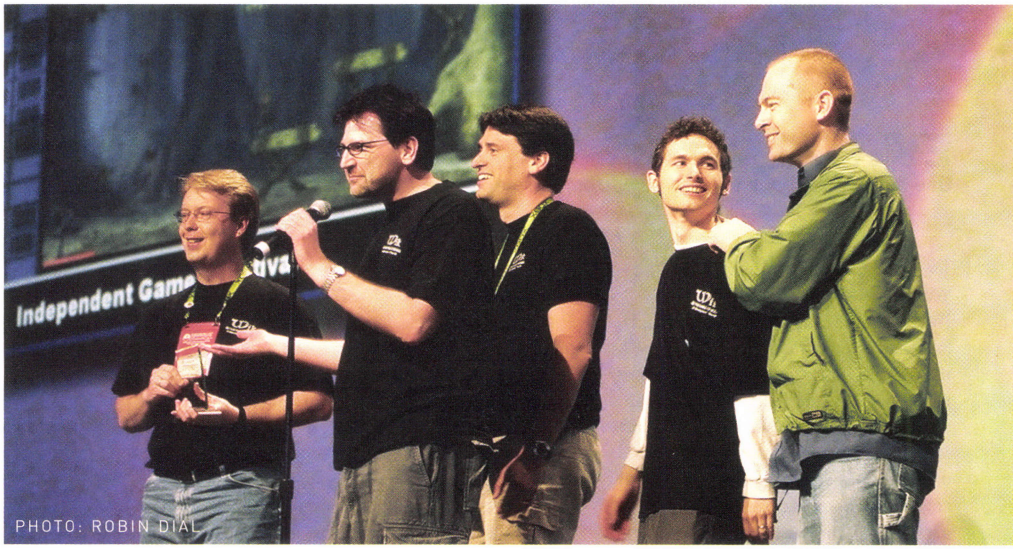

PHOTO: ROBIN DIAL

The Independent Games Festival appears at GDC each year.

ESRB

www.esrb.org

The Entertainment Software Rating System (ESRB) is best know as the organization that decides which games are stamped Adult Only, Mature, Teen, Everyone 10+, Everyone, or Early Childhood. Parents can visit the ESRB web site to review the ratings of specific titles. The ESRB's rating policies are voluntary, but are universally enforced by retailers and publishers.

TIGA

www.tiga.org

The Independent Game Developers Association (TIGA, pronounced TIE-gah), another U.K. association, stabilizes and advances Europe's place in the global game industry. TIGA has a notable business and political edge, emphasizing the financial importance of video game development in Europe.

AIAS

www.interactive.org

The Academy of Interactive Arts & Sciences, a non-profit member organization, runs the D.I.C.E. Summit and acknowledges developer excellence with the Interactive Achievement Awards, presented at D.I.C.E. every year. Membership is open to any qualified person working in the software entertainment industry. Both businesses and individuals may join for a membership fee between $45 and $245, depending on professional title.

CESA

www.cesa.or.jp/english

The Computer Entertainment Supplier's Association (CESA, pronounced SAY-suh) is a Tokyo-based membership organization that supports the home computer entertainment industry through research, professional training, and other activities. The organization includes in its scope topics such as intellectual property, ethics, and technology and controls the nation's rating system.

—Jill Duffy

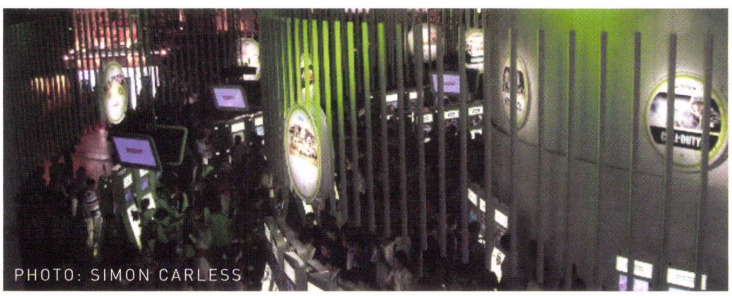

PHOTO: SIMON CARLESS

The Tokyo Game Show.

ADDITIONAL RESOURCES

There are several additional events and organizations that game industry professionals should become familiar with, including:

EVENTS

- Advertising in Games
- Casual Games Conference
- Christian Game Developers Conference
- Microsoft Meltdown
- Mobile Games Conference
- Montreal Game Summit
- Siggraph
- Taipei Games Show

ORGANIZATIONS

- Computer Game Artists Association
- Game Developers Association of Australia
- International Game Journalists Association
- G.A.N.G (for developers of game audio and music)

Brenda Brathwaite · Professor of Interactive Design and Game Development, Savannah, Ga.

Brathwaite is a 24-year veteran of the video game industry, having worked on 21 published titles, including the award-winning *Wizardry* and *Jagged Alliance* series of role-playing games. An expert and frequent speaker on sexual content in video games, she has spoken about parental controls and censorship at the Massachusetts Institute of Technology, the 2006 Game Developers Conference, and Future Play 2005. Brathwaite is founder and chair of the International Game Developers Association's Sex Special Interest Group. Brathwaite is currently working on a new Xbox 360/PS3 game and a new book to be titled "Sex in Video Games."

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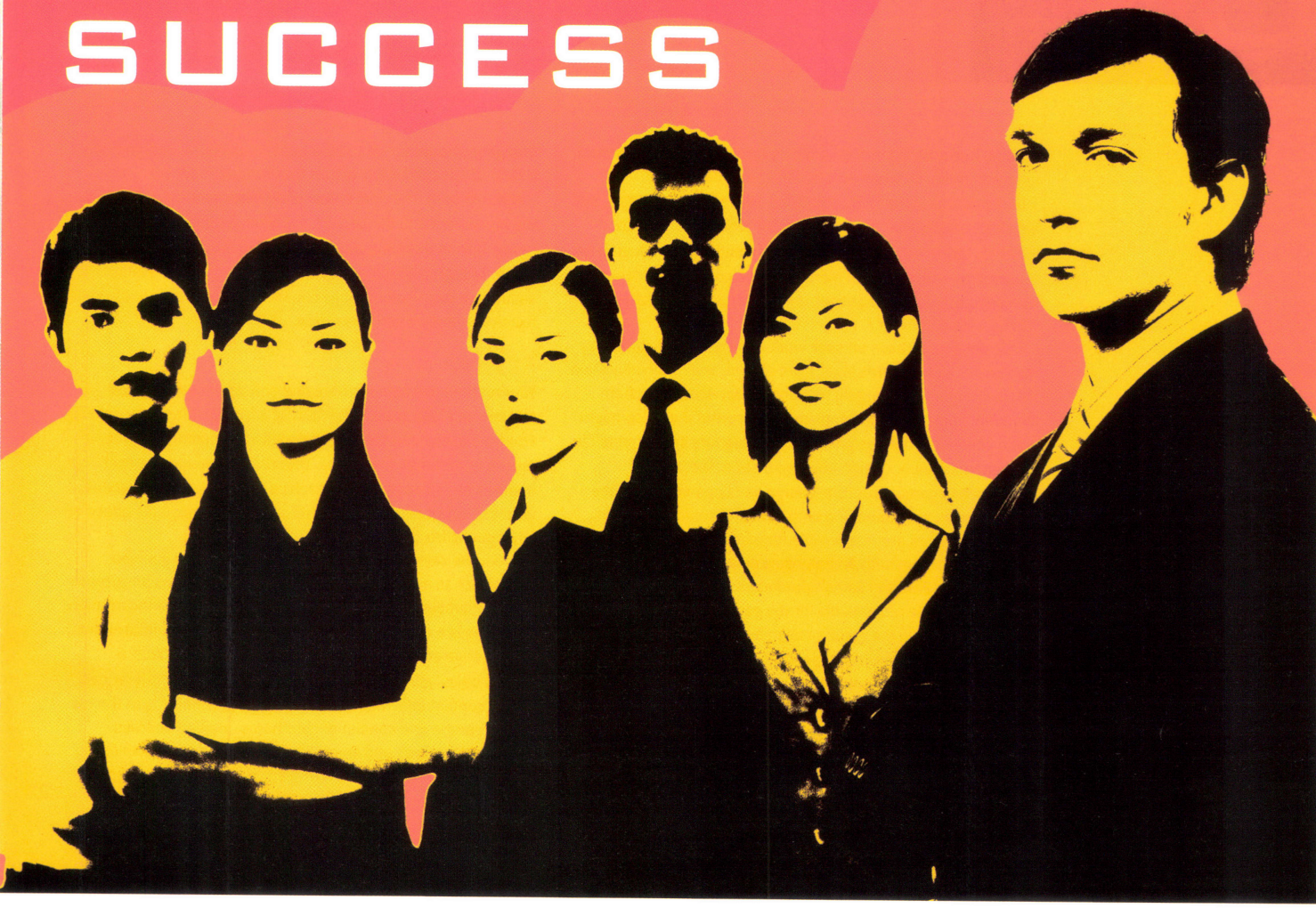

TIPS FOR FUTURE GAME DESIGNERS, FROM RESUME TO INTERVIEW

IT'S A BIG TRANSITION TIME IN THE GAME INDUSTRY. EVERY FOUR years or so, a cyclical process starts where new hardware is introduced by the console manufacturers and both the development and publishing communities ramp up to meet the demands of more sophisticated technology. As the launch dates for new consoles rapidly approach, development for these new gaming platforms reaches full swing, which means that numerous job opportunities become available in all facets of game production.

Whether you're a junior-level applicant or five-year veteran, competition in the industry is stronger than ever due to numerous factors: an abundance of qualified candidates, an increase in graduates from game-related college programs, and the specialization of roles within the major game disciplines. With all that being said, what can potential game designers do to position themselves for success in the job market? Since the game industry is like no other, job applicants need to know some very specific advice that isn't found in a general how-to-interview book—in fact, some of the rules in our industry are in opposition to what you'd find in most businesses. Furthermore, within this little niche of ours, game designer applicants have their own unique environment. Before drafting a resume or rehearsing for an interview, budding game designers need to know what the deal-breakers are and how to avoid them, as well as what they can do to stand out from the fierce competition.

THE DESIGN TEAM'S FUNCTION

If you're looking to get into the video game industry as a designer, you first need to be familiar with what the job

JASON WEESNER

is a senior designer at Crystal Dynamics. He's been in the industry long enough to know shortcuts for DPaint. email him at

jweesner@gdmag.com.

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entails. Game designers do a whole lot more than just dream up great ideas. So what exactly is a game designer?

Game designers not only create fun and successful titles, but also help ensure that the development process is smooth, iterative, and efficient. Game designer positions can roughly be broken down into a simple hierarchy: designer, senior designer, lead designer, design manager, and, depending on your point of view, creative director.

Core designers focus on spec work—the design of gameplay mechanics at a systems level, level design, and implementation. Senior designers are largely responsible for specific system ownership and advanced implementation, and they also might guide a team of core designers. Lead designers are responsible for systems review, design implementation, the overall adherence to game structure, design development goals, the game's vision, and managing both core and senior designers. Design managers are responsible for managing the entire design department with an emphasis on scheduling and tasking in conjunction with the game's producers. A creative director is a management role responsible for the game's creative scope in relation to not only the game's vision but also the company's vision by coordinating with team leaders and upper management at a corporate level.

Some projects lack design representation at a management level (such as a design manager or creative director), which places those responsibilities on the lead designer.

The role of a game designer varies according to the game's stage of development. Three main production stages mark a game's progress: preproduction, production, and the alpha-to-beta march, when a release candidate is finalized after rigorous testing and bug fixing. Each has its own challenges.

Preproduction. Preproduction can vary in length from a couple of months to a year or more depending on the type of game and the preproduction budget. In the preproduction stage, designers may find themselves producing traditional paper maps, writing game systems documentation, preparing competitive analysis on comparable products, modeling block worlds to establish game scale with the art department, or working with the programming department on toolsets for production. For the design department, the goal of preproduction is to produce both a comprehensive design document as well as the design process that will be used in production.

Production. In the production stage, the game actually gets made. Again, the length of this stage of development depends almost entirely on the game's budget, which accounts for factors like the publisher's release schedule, marketing needs, and the best window of opportunity for release. During this stage, depending on the structure of the team, designers fall into two categories: systems designers or general-purpose designers. Systems designers are responsible for single facets of the game like level design, combat, cameras, bosses, scripting, and enemy AI. General-purpose designers are responsible for any number of levels within a game and all the systems that are associated with them. Systems designers are more specialized while general-purpose designers are more comprehensive. Ideally, every designer should strive to be a general-purpose designer with a field of specialization within that broader skill set.

Alpha to beta. The final phase of development stretches from the alpha period to the beta period when a release candidate is ready. During this time, designers spend much of their time going through extensive bug lists generated by the quality assurance department. Bugs can be anything from simple logic fixes to extensive script rewrites.

RESUME FACTOID

Unlike in other industries, resumes can be visually playful, featuring small, tasteful sketches or other art that doesn't detract from the text. However, candidates should never include their own photo or disclose information about race, age, or gender on a resume.

RESUME

Your resume can be a deal-breaker or a deal-maker. A good resume can help ensure the start of a fruitful interview process while a bad one can just as surely kill an opportunity before it even has a chance to develop. Your resume makes the first impression, and people will reach conclusions not only about your skills, but also about you as a potential employee based on what you write.

A resume serves the crucial purpose of relating your job experience to a potential employer as thoroughly as possible in the least amount of space necessary. In its simplest incarnation, a resume is a document consisting of your contact information, an objective statement, a summary of applicable skills, a chronological job history, and a list of professional references.

Your contact information should figure prominently at the top of the resume and consist of your name, mailing address, telephone number, and an email address where you can easily be contacted. If you are currently employed during your job search, you may want to refrain from using a work phone number or work email address as a means of contact especially if you're looking to maintain any degree of privacy. Most importantly, your email address should be simple and contain your name. Don't list an email address (or URL) that contains potentially offensive references. A hiring manager will think twice about contacting crazygurl666@email.com.

The objective statement is a short paragraph that clearly explains the type of position you're looking for and why you're the best candidate for the job. Avoid clichés like "a passion for gaming" or "a proven track record." Objective statements contain information about your strengths, which are supported by your work history. Use this area to focus on who you are and what you have to offer in relation to the job you're applying for, which means the objective statement changes every time you send your resume. Successful resumes tailor their objective statements to both the position and company in question.

For a game designer position, your summary of skills needs to give the reader an overall look at your experience with software packages, toolsets, and scripting languages that are commonly used in the industry. Additionally, you may want to include any management experience, traditional board game experience, or college coursework that you've found to be beneficial in relation to game design. When listing your skills, it's crucial that you will later be able to discuss them in relation to the projects you've worked on, so don't list any skills or tools that you don't really have a lot of experience with. Be prepared to discuss in detail everything that goes on

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2. **The number of supervisors you report to on a daily basis is:**

   (circle one) 15 25 100+

3. **In the event you disagree with your supervisor, you tend to:**

   (circle one) (a) suck it up (b) say nothing (c) all the above

4. **Your preferred team size is:**

   (circle one) 150 200 250

5. **The games you work on are rated:**

   (circle one) 2nd best 3rd best crap

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your resume. If you can't discuss it, don't include it.

A well-structured work history should appear in chronological order, starting with the most current. Always include the length of time spent at the company, projects (title and applicable platforms), and positions you held (per title). Additionally, reference should be made on a project-by-project basis to your listed summary of skills so that employers can get an idea of what you did on each project. Only include jobs and projects that are directly related to your design experience. If you've done any work in the industry outside of design, only mention it if it's important to your design experience or design thought process.

The last part of the resume is the references section. References are people you have worked with who can speak on your behalf in relation to your job experiences, skills, and personal work ethics.

For game designers, it's important that you work well with other disciplines. A great set of references will include managers or co-workers from a variety of disciplines, such as production, art, or programming. If you have already secured an interview, bring your list of references and their contact information with you; using the phrase "references upon request" will only work against you at this stage. If you don't provide references, you run the risk of having your background check done through alternate channels, meaning people who you may not necessarily want to use as a reference will be contacted. The game industry is a small one, so it's vital that you keep your reputation clean at all times. A bad reference today could damage your career for years to come.

DO GAME DESIGNERS HAVE PORTFOLIOS?

Artists have portfolios that showcase their fine art skills and work from video game projects. Examples of game design work are often something that job-hunting designers just don't think about or don't think they need. However, examples of design work can be as critical to your chances of employment as an art portfolio can be to an artist.

Examples of work can include system documentation (specs), scripting examples, level layouts (paper / Max / Maya), magazine reviews, articles, or interviews. Get yourself a good presentation binder to put everything in and make it look professional and presentable. If you are going to post examples of your work on a website, keep it professional. Don't link to personal blogs or other websites that may influence the reader.

Once you've secured an interview, always bring a CD to the interview containing your resume as well as any other supporting materials. If you want to be even more resourceful during the job hunt, keep a copy of your resume online, either on a website or an FTP or as an attachment in a web-based mail program. This way, you'll always have access to your resume as long as there is an internet connection nearby. And save all your materials in standard formats (such as .rtf or .pdf) that don't require special software.

GETTING OUT THERE

When you're ready to cast yourself and your resume out into the world, there are two ways of doing so. You can either find a recruiter, or you can job-hunt the old fashioned way—on your own. In either case, it's important that you apply to the right company for you, the right project for you, and the right position for you.

A recruiter (sometimes referred to as a headhunter) provides client representation between potential candidates and potential employers based on the needs of both parties. There are numerous benefits to using a recruiter whether you're entry-level or experienced. Recruiters can provide direct contacts with company hiring managers that would otherwise be difficult to attain. They can help negotiate different salary requirements for a position, and can help locate specific roles for highly specialized candidates.

If you opt for a recruiter, make sure she or he refers you to companies or teams where your abilities would provide a natural

the five disciples

INTERVIEWEES, MEET YOUR interviewers! Before the interview starts, candidates should be given an itinerary of who they're going to meet.

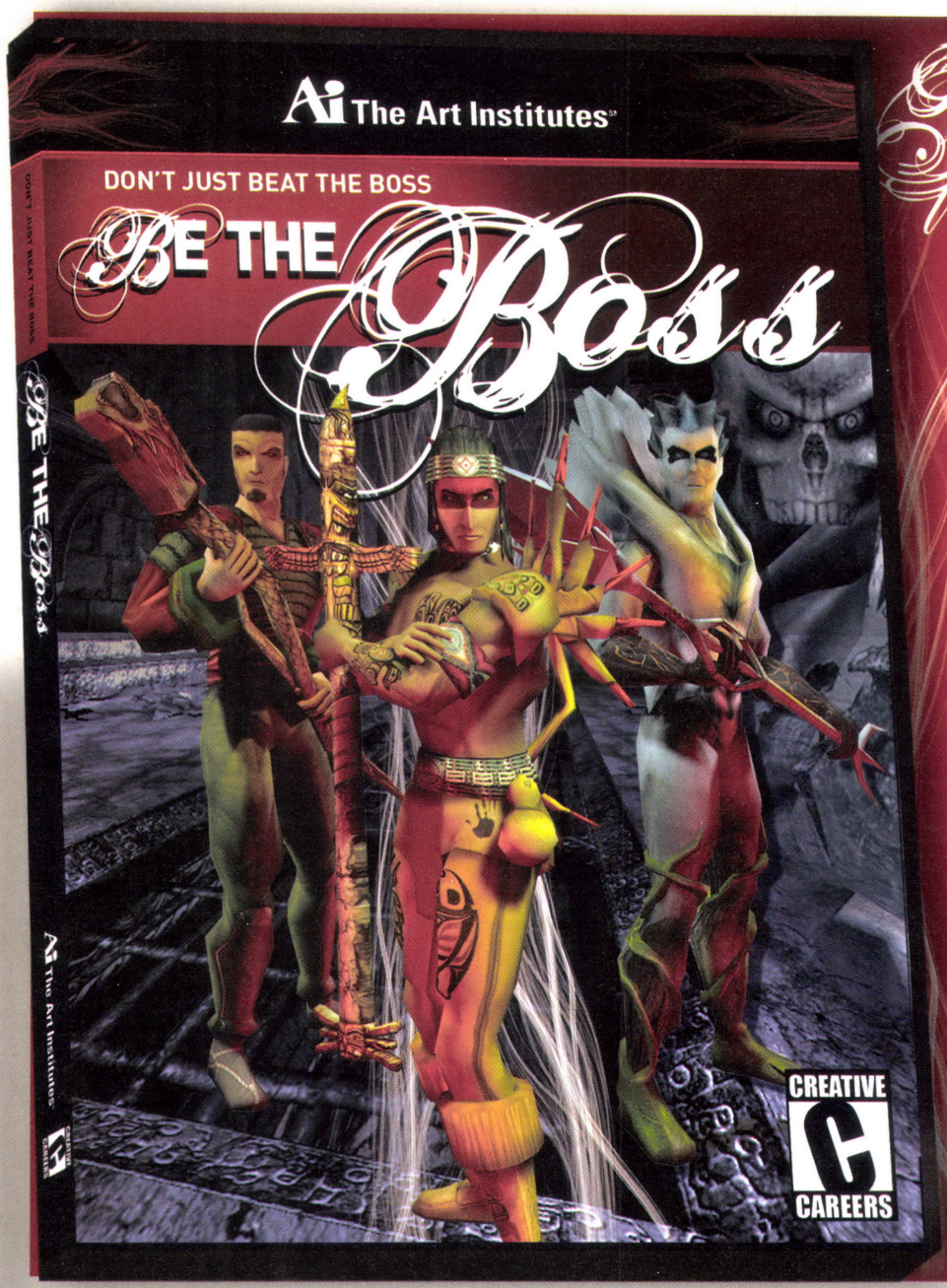
UPPER MANAGEMENT. Ideally, an interviewee meets with someone in upper management, such as a studio creative director, executive producer, or CEO, who will tell them about the company's history, culture, goals, and future. In the case of a smaller company, there might not be a single point person who talks only about the company, but usually this responsibility falls to the interviewer highest on the chain of command.

PRODUCER. A producer will cover topics that help establish how the candidate will fit into the overall team structure. Producers are likely to ask candidates about schedules, team management, and personal organizational skills. They are also likely the ones to inquire about salary requirements and possible hire dates.

PROGRAMMER. Programmers will likely ask questions that gauge the candidate's ability to work closely with the programming team. Candidates should be prepared to talk about spec documentation, working with tools, and working with code. Programmers want to know that the next team designer is not only an effective communicator, but also is able to function without a lot of handholding from the programming team when it comes to gameplay implementation.

ARTIST. An artist might ask the candidate about working with the pipeline from design to art to the finished product. A good design candidate will understand the economy of design in relation to the needs of the art team, the art pipeline, and the game's engine requirements.

DESIGNER. Finally, a game designer candidate will talk to an on-staff designer, who will ask more detailed questions in relation to theory, process, implementation, and teamwork. This is the part of the interview where a candidate's work samples will be scrutinized. Examples of work can be documentation, level layouts, game levels, or even a sketchbook of ideas. Designers will ask about not only the candidate's successes, but also failures and how they were handled. Candidates will have an opportunity to talk about their favorite games, hobbies, and general interests, while interviewers pay attention to how well the potential new hire will fit in with the design team on a social level.



You know that feeling you get when you blow up everything, destroy all of the creatures, rescue the princess, and discover every single power-up and hidden level?

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Student Art: Class Project Mayham — 2004, Game Art & Design, Students, The Art Institute of California — Los Angeles

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and appropriate fit. Let your recruiter know who you may have approached on your own and, conversely, make sure your recruiter keeps you up to date on whom they contact on your behalf. Keeping in contact with your recruiter on a regular basis will help to ensure that the recruiter doesn't do anything without your permission. Finally, research recruiters and find one who has a solid reputation and fits your needs. Don't blindly accept the services of just any recruiter who contacts you since this can produce unexpected results that may not be in your best interests.

If you decide to conduct your own job search, there are numerous resources available at little to no cost. Visit the web sites of companies whose games you enjoy and see if there are positions available—most developers and publishers have entire sections on their websites dedicated to employment opportunities. While you're browsing around, familiarize yourself with each company's corporate structure, culture (history and work environment), and the games they've developed or published. Use other resources like game reviews, interviews with employees or executives, and industry-related forums to assess whether it's a place where you'd like to work. You should rent or buy some of the company's titles and play them through, paying attention to both the good and bad aspects of the games' designs.

Beyond the world wide web, there are various industry conventions and functions that offer recruitment and employment opportunities, such as the annual Game Developers Conference, E3, Siggraph (Special Interest Group on Graphics), and the Tokyo Game Show (for more examples see "Who To Know, What To Do," pg. 21). And for college students, many campuses have recruitment events for game development program graduates and internship programs. If your specific campus lacks these events, you can contact other schools in the area and ask permission to attend as a visiting student.

INTERVIEW ATTIRE

Unlike in other industries, casual dress is the norm. Potential hires who arrive at an interview in a three-piece suit exhibit ignorance of the industry and company culture.

THE PHONE SCREEN

Recruiting new talent is an expensive, time-consuming, and arduous task for any company. A traditional interview can amount to a considerable investment, so companies often will conduct a series of phone screens first before bringing a candidate in.

A phone screen is an early filter in the hiring process for both you and the employer. However, phone screens should be treated as actual interviews, so as a candidate, you need to be fully prepared. However, since the person on the other end of the phone can't see what you're doing, there's no reason you can't cheat a little and have some notes available on things you'd like to discuss.

An initial phone screen is usually conducted by a representative from the company's human resources department and covers topics like your location (in relation to potential relocation costs), current employment situation, availability, and salary requirements.

For a game designer, if you're lucky enough to pass through an initial phone screen, you're likely to be booked for a second. The second phone screen will introduce you to producers, lead game designers, and creative directors. This portion of the interview process is where you will be asked to elaborate on elements of your resume as well as broader subject such as design theory, toolset familiarity, production methods, contributions to specific titles, and even company departures (be ready to explain why you left your last gig). Since you are talking to people who are within your discipline or closely affiliated with it, make sure you answer all the questions in as much detail as possible.

During the phone screen process, always ask questions about the company and the position you are being considered for. This process is meant to act as a filter for both parties, so feel free to ask questions about subjects like company culture, team structure, and production schedules. Your interviewers will also get a better idea of who you are and what's important to you based on the questions you ask.

Write down all the information you can gather from these phone screens so you can prepare additional questions for the in-person interview. And, after you've nailed the phone screens and have scheduled an in-person interview, be sure to send ahead your best supporting materials on a disc. That way, your interviewers can prescreen your work, such as a portfolio or demo reel, leaving you more time in the interview to discuss it.

FACE TO FACE

Your part of the interview is only the tip of an iceberg. The majority of the interview actually happens after you've left, when different departments get together to discuss whether you're a fit for both the position and the company.

To make a lasting impression on these people, you should prepare for the interview by rehearsing it. Enlist a friend or co-worker to role-play a dry run interview. At the end, ask your partner if she or he has a good understanding of what you do and what you're looking for.

Some of the biggest deal-breakers made during the interview are simple matters of professional decorum. For example, dress comfortably, but not too casually and not too formally. Casual dress is the norm in game development, but you still want to make it look like you're making as much of an effort to be there as the company is to bring you there. Always stand to shake hands with people. Take care of all your personal hygiene beforehand (you'd be surprised).

Your future game developer colleagues want you to act professional, but not too serious or stoic. Never use offensive language, but don't stress over the Queen's English either. As the interview progresses, write down everybody's names and positions, or, if given a business card, take a good look at it and place it down on the table in front of you in relation to the person who gave it to you.

When the questioning starts, the most important thing to do is provide as much detail about your experience with the design process as possible. This includes level design, scripting, prototyping, documentation, problem-solving, things you're proud of, and things that may not have gone very well. If your resume says you were a lead designer, discuss team-building and how you managed other designers. Interviewers like to hear specific details, so don't describe any aspects of your game design experience in general terms. This isn't a Supreme Court Justice hearing; it's a panel of

your peers who are interested in how you operate as a designer. If you provide consistently safe yet vague answers, the interviewers can't judge your abilities.

One question that's likely to come up is, "What games are you currently playing?" This question is an open opportunity for you to display your knowledge, interests, and game design philosophy. Don't rattle off a list of titles. Name a few games that you have strong opinions about and explain why you do or don't like them in relation to your theories on game design.

Never complain about a company, co-worker, manager, or process unless you are prepared to discuss the situation in detail with some positive spin. For example, most seasoned game designers have run into situations where they've had to compromise design in order to meet a schedule or avoid conflict within the team. Take some time to explain the nature of the conflict and how the resolution was shaped by your ability to creatively compromise, improvise, or innovate. Frame the answer with the lessons you learned from the experience and how you would apply them to future projects.

As a prospective game designer, the interview process will often include a design test. Design tests can range from quick-response questions to whiteboard diagrams to full-fledged exams with several questions and a two or three-day turnaround time.

If asked to answer an in-person design test, don't panic. Just speak clearly and emphasize the design skills you feel most comfortable with. Work within the framework of the questions asked since this will give interviewers a clear idea of how you perform an assigned task and what your design process is. If you are given the take-home variety of design test, only complete what you can (meaning don't fake or cheat anything) and be prepared to back up what you do and don't know based on your design experience. Remember, there is nothing wrong with not knowing how to do something, but there is something wrong with faking it and risking putting yourself, your team, or the project in jeopardy later when you can't perform the tasks for which you were hired.

At the conclusion of the interview, the interviewers may ask you if you have any questions for them. Never treat this as a token question or formality. Ask questions that are important to you based on your past experiences with other companies and projects. Some topics you might want to bring up are: management structure, company culture, design process, workflow, core hours, crunch time, opportunities for promotion, relationships with publishers, and creative control. Make sure to frame questions in a positive manner since your questions will give interviewers even more information about your experience and credibility.

FOLLOW THROUGH

When you leave an interview, the process is far from over. To help seal the deal and leave a lasting impression, make sure you call, send an email, or mail a handwritten note to the company's HR department thanking them for setting up the interview. You may also want to contact the project lead to thank him or her personally, adding that you are available for any further questions at any time, which will show that you are both available and eager for the position.

If you have a recruiter, follow up with him or her to say how the interview went, express your feelings about the company, and confirm whether you are interested in moving forward, should the opportunity arise.

Hearing back from an employer can take anywhere from days to months, depending on how urgently the position needs to be filled and how many other candidates are being considered. During this time, the HR department will solicit feedback from all the people you interviewed with and weigh it against other factors, such as salary requirements, to determine whether you're the ideal person for the position. If all goes well, HR will contact you and make you a verbal offer. If you accept the verbal offer, you should expect a written offer in the mail soon after, which you should sign and return, photocopying an extra for your records.

SAVVY IS AS SAVVY DOES

There has never been a more exciting time to be a game designer. As a profession, a game designer's role and performance is becoming increasingly important to numerous facets of game production.

Game design is not an exclusive club by any means, but that shouldn't give the prospective designer any reason to be lazy, unprepared, or aloof when it comes to the resume and interview process. On the contrary, the level of scrutiny for the position of game designer is only going to become more stringent and dependent on the candidate's ability to excel as the industry becomes more design savvy.

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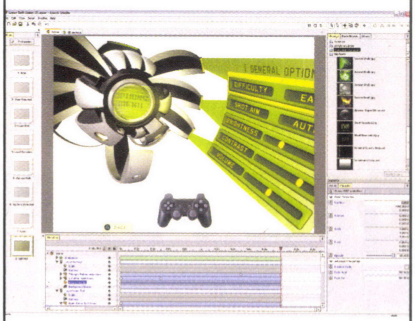

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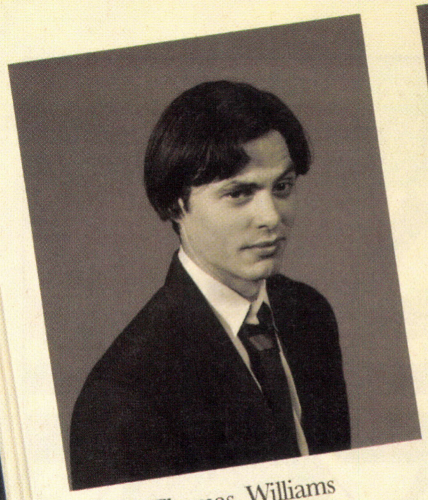
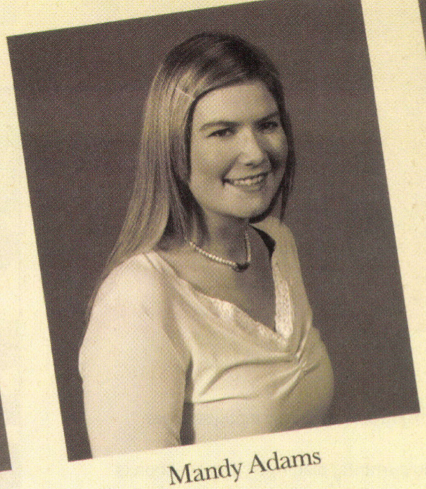
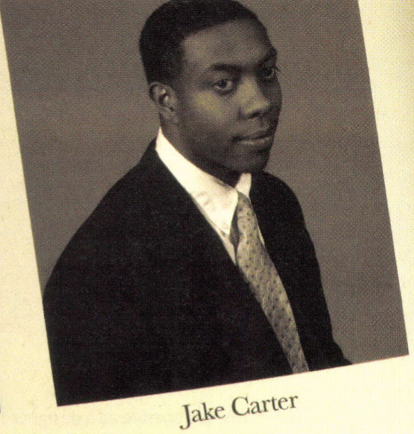


Thomas Williams

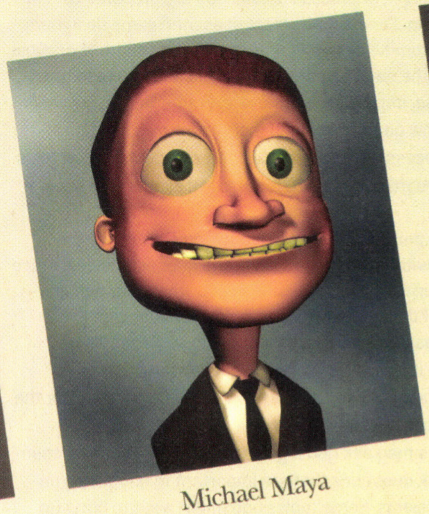


Mandy Adams

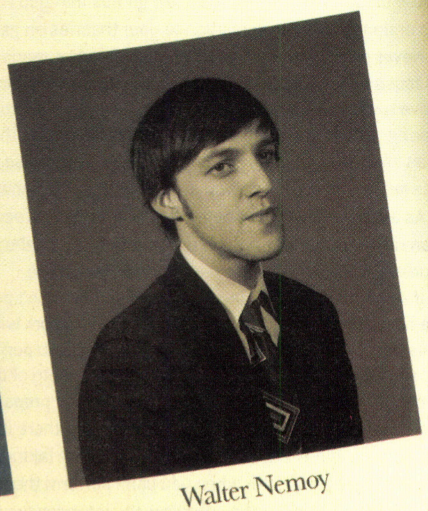


Jake Carter

Jenny Smith



Michael Maya



Walter Nemoy

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3D Model By Ex'pression Student Paul Nguyen

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TYPES OF SCHOOLS

ART SCHOOL VS. GAME ACADEMY VS. 4-YEAR UNIVERSITY

SO YOU'VE DECIDED YOU WANT TO GO TO school for games. As difficult as that decision may have been, there's an even tougher one ahead: What type of school to attend? There are three major types of educational institutions (excluding online universities), each with its own benefits and potential challenges: art schools, game-specific institutions, and traditional universities.

ART SCHOOL

Dedicated art schools have recently begun to offer game-specific programs that not only allow you to learn how to make art for games, but also to design them. The Academy of Art University, located in San Francisco, is one such institution. Students are taught by industry professionals, and have access to the latest tools, as a number of the more prominent game tools providers have begun to offer student/educational prices.

"The classes are geared toward giving the students a solid background in the technique and theory of game creation from animation, to modeling, to level design, and so on," says Todd Robinson, game lead for the animation department. "Special attention is paid to team projects so that students understand what it is like to work with other people on a single project."

The Art Institute International (not to be confused with the Academy of Art) also offers game art and design programs across its 32 North American schools. Barbara L. Roberts, vice president and academic affairs specialist explains how the game art and design program grew out of the Institute's animation department. "It became apparent several years ago that a new industry was developing, and that The Art Institutes were in position to combine the essential art and technology skills needed for game production."

Indeed, art schools are well-positioned to instruct on certain aspects of game development, given their long history of 3D software and animation instruction.

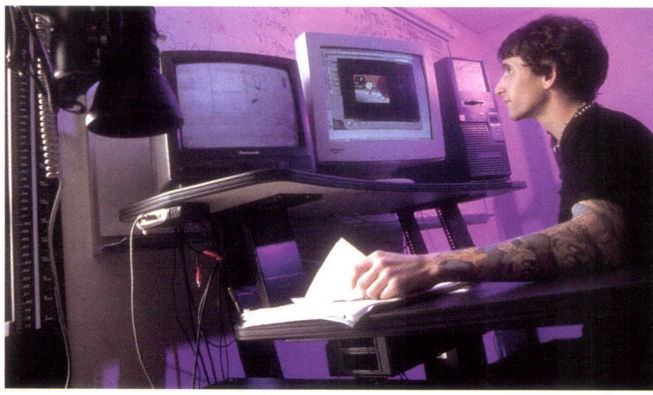
Although art schools have a dedicated area of expertise, students aren't given a free pass out of general education. At the Art Institutes, according to Roberts, "A game art and design student begins with foundation art courses (Fundamentals of Design, Drawing, etc.) and is required throughout the program to take 14 to 16 general education courses, such as English, art history, psychology, and math. The foundation courses are necessary, as drawing and design are integral to the program, and to earn a bachelor's degree accreditation [each campus specifies] the amount of general education needed."

Further, students don't simply launch into game development from the start, but instead are asked to develop some baseline skills and knowledge first. At the Academy of Art University, for example, the curriculum has students study conventional media before approaching anything cutting edge. Robinson pegs this as one of the benefits of attending a dedicated art university. "All of our game students are required to have a good grounding in the traditional fine arts before they move on to digital work. The students also get to learn from professionals with a diverse gaming background." These instructors are expected to keep up with the latest trends in games, and often still work in the industry.

GAME SCHOOL

Another type of post-secondary school that's of interest to budding game developers is the game-specific institution. Although you're more likely to find an art school in your area than a game-specific one, these academies are becoming increasingly numerous and noteworthy. At game academies, students complete one or more full games during their career, taking a very direct and hands-on approach to learning about video game development.

DigiPen in Redmond, Washington—one of the west coast's major development hubs—is a successful school of this nature. Senior vice president of operations Raymond Yan explains why a student might find a game-specific program beneficial. "A focused curriculum is ideal for those individuals who really know that they want to pursue a serious career in game development," he says. "The reality is that having the ability to produce video games today takes more than what one finds in a typical computer science degree. The vertical nature of a focused curriculum provides a direct and comprehensive path to achieve that goal."



A student at work in the Art Institute's animation department.

The Guildhall at Southern Methodist University (SMU) is another institution whose program supports the development of an entire game. However, SMU students must complete traditional courses as well in order to obtain a degree.

The Guildhall is an intensive program which takes place over seven consecutive quarters. Students are admitted in groups, which the school calls "cohorts," and are tasked with creating several game modification projects, meaning they start with an existing game and change its design, graphics (via skins), and other elements, to create something new.

"Since the program is intended to mimic the game industry, the students give their full commitment to their studies, personal projects, and team work," says Peter Raad, executive director of The Guildhall. "Students take major and minor courses in their specializations, complete focus studies in their fields of interest, and engage in cross-disciplinary team projects that require the best from every member."

DigiPen is also very concerned with team efforts. Student projects are completed in scenarios that are similar to actual development houses.

"Game development is much like trying to put together a very large complicated puzzle involving pieces like physics engines, artificial intelligence, 3D environments, music, animation, networking code, and camera algorithms, all of which must fit together and ultimately be fun," says DigiPen's Yan. "This makes it quite important for students to learn not only the academic aspects of the various subjects, but also how to apply that knowledge to solve problems in a multi-disciplined team environment. What better way to do that than by getting the students to go through multiple productions under similar conditions and constraints found within a real development company?"

At a school like DigiPen, Yan states, students learn what it's really like to be a game developer, having to consider not only personal success and learning, but the success of the whole team, with an eye toward the finished product.

Raad at The Guildhall says that a changing industry means students need a different kind of education. "It's no secret that making games is one of the most rewarding careers today," he says. "The number of job seekers who are seriously pursuing this field is staggering. It used to be the case that studios had the liberty to take bright, fresh, new employees with no specific game education background and train them in the methods, tools, and style that are required to make games. This is no longer true."

DigiPen's campus in Redmond, Wash.

With the size and speed of many projects today, Raad says, companies want to hire people who need little-to-no training, people who affect the work environment in a positive way immediately.

TRADITIONAL UNIVERSITY

Traditional four-year universities—which usually offer many different degrees, both undergraduate and graduate, in the sciences, liberal arts, fine arts, and sometimes even technical trades—have in recent years begun incorporating game studies and game development programs, though in many cases game-related work tends to be more focused on the graduate level. Four-year universities likely don't have the honed specificity that an arts college or game-specific institute does, but do carry a wide array of choices.

Los Angeles-based University of Southern California (USC) has developed a solid graduate program—branching from its renowned film school—which now operates with help from a multi-million dollar grant from Electronic Arts. The school offers internships at EA, as well as the opportunity to complete games at a graduate level.

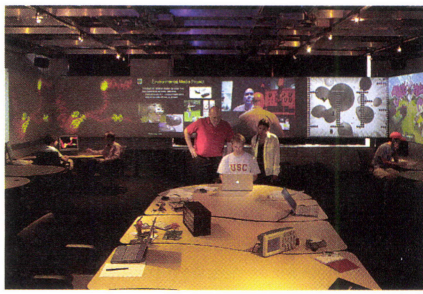
Tracy Fullerton, assistant professor of USC's cinema-television interactive media division and co-director of the EA game innovation lab, says games became a part of USC because they are an expressive art form, like film and television.

"We have a program in game design because we believe that games and interactive media are a big part of the future of cinematic arts," she says. "The School of Cinema-TV has always focused not only on the technical aspects of film and television, but also on the process of articulating complex ideas and stories, planning and executing projects, leading teams, collaborating with team members with many different technical backgrounds. These types of creative thinking and management skills are exactly what the next generation of game developers require."

Carnegie Mellon University, located in Pittsburgh, Penn., also has an established and rather exclusive graduate program. The university admits only 50 students per year to the main campus. The program, run from Carnegie Mellon's Entertainment Technology Center (ETC), offers a Master's degree in entertainment technology.

As ETC program director Todd Bowers explains, "The high concept behind both the ETC and the Masters in entertainment technology degree is that they are based on the principle of having technologists and non-technologists work together on projects that produce artifacts that are intended to entertain, inform, inspire, or otherwise affect a participant."

At USC, the emphasis isn't just on technique, but also on artistry, says Fullerton. "I don't feel we have seen the full potential of games as a medium yet. However, in my classes I'm seeing a generation of game artists come of age who do things with games that we can't even predict. I encourage my game design students to think of games as a much larger potential field than just what's available on the shelves today, to think of games as an art form—a participatory, social art form."



USC's interactive media lab.

Carnegie Mellon's Bowers is careful to mention that a traditional university doesn't mean a lack of focus. "We don't intend to take artists and turn them into engineers, or vice versa. While some students will be able to achieve mastery in both areas, it's not our intention to have our students master 'the other side,'" he says. "Instead, we intend for a typical student in this program to enter with mastery or training in a specific area and spend his or her two years at Carnegie Mellon learning the vocabulary, values, and working patterns of the other culture," which he says prepares students for work in a team-oriented environment, while providing the necessary specialization.

If specialization is important, why attend a full university? According to Fullerton, it's all about context.

"A university education is of great importance to game developers. It gives them a chance to experience a full range of ideas and information and to become a well-rounded, well-educated individual and creative thinker," Fullerton says. "For example, someone interested in creating social games would do well to take classes in anthropology or sociology. If they were interested in creating online worlds, an understanding of economic systems might be critical. Because games often are abstracted models of real-world systems, having a breadth of knowledge about the world and its people is critical for any game designer."

WHASSAMATTA U.?

While each type of school has its advantages and areas of potential difficulty, you should always look for an institution and program that best suits both your educational needs and your learning style. No matter what route you take, the most important thing is to have a desire to move the medium forward.

—Brandon Sheffield

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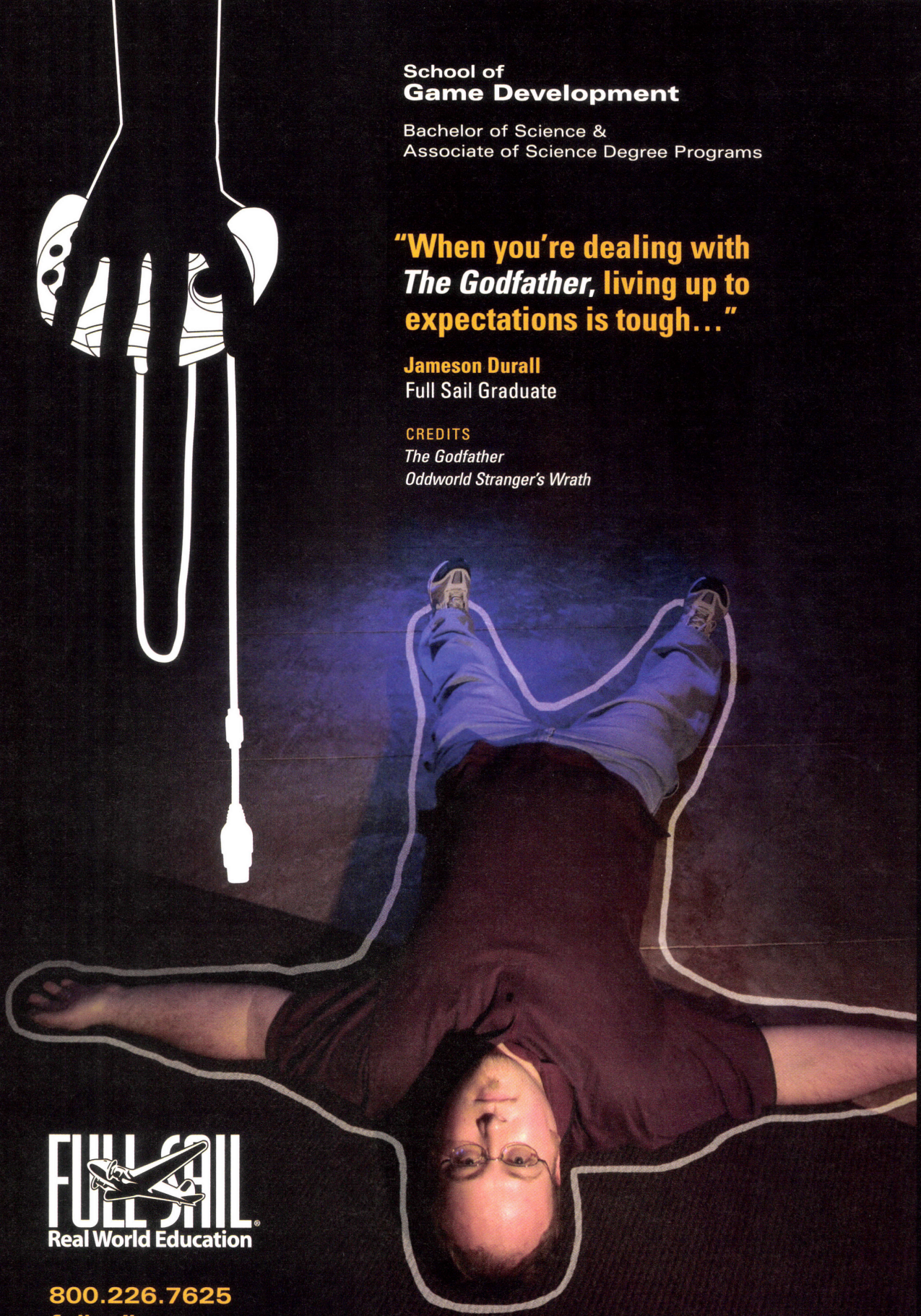

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jill duffy

THE STUDENT GAME EXPERIENCE

IGF FINALISTS TELL ALL

THOSE WHO CAN, DO. IN THE VIDEO GAME INDUSTRY, THESE words are more than just a saying. They are, in a sense, the bar, the cutoff, the division between the wheat and the chaff. The clearest way to show passion for video games and game development (which all job applicants in the field are expected to do) is to make a game, and the top-tier candidates typically are people who create playable, enjoyable, and polished games early in their years. Those who can make games, do, and that's what separates them from mere dreamers.

John Edwards, for example, developed an original video game called OCULAR INK while at college in Iowa. Will Dull made a complete game (COLORMENTAL) in five months at Full Sail. And Kellee Santiago and Jenova Chen teamed up with other University of Southern California students to create CLOUD. These four students not only built entire games, but also entered them into the 2006 Independent Games Festival Student Showcase—and all came home winners. These achievements are the gamemaking experiences that will count for something on their resumes. The completed games will round out their portfolios and demo reels. And while developing a video game on a student budget may sound like an impossible task, those who can, do.

JILL DUFFY *is managing editor of* Game Developer *magazine. She welcomes letters and email from students and their parents interested in learning more about a career in games. Email her at* ***jduffy@gdmag.com****.*

IMAGE BY EVAN DORKIN AND SARAH DYER

CLOUD

www.thatcloudgame.com

DEVELOPED BY

Jenova Chen
Kellee Santiago
Erik Nelson
Glenn Song
Vincent Diamante
Erin Dinehart
Aaron Meyers

PROJECT ADVISORS

John Deweese
Tracy Fullerton

TOOLS USED IN DEVELOPMENT

Microsoft Visual Studio 2003
Microsoft Word 2003
Microsoft Excel 2003
Adobe Photoshop CS
Adobe Illustrator CS
Macromedia Flash 2004 MX
Macromedia Dreamweaver 2004 MX
Maya 6.0 Educational

"AS STUDENT GAMEMAKERS, DEDICATION AND concentration are the most challenging things to harness," says Jenova Chen, who paired up with Kellee Santiago and other USC students to create a game called CLOUD. Chen and Santiago say fans of their game describe it as a "childhood dream simulator"; the player flies through the air while affecting the clouds and weather. It's dreamy content for a team of nose-to-the-grindstone students, who have extremely limited time and money.

The main development of CLOUD started in January 2005 and concluded in November. As with many student projects, there was a small hiatus while the students worked their summer internships in July and August. The team then spent September and October crunching to finish the game.

"Consistent direction is another big challenge," adds Chen. "While you don't have any authority to give rigid direction to your fellow classmates, you want to make sure the entire team sees the same picture."

Despite their constraints, both Chen and Santiago had something of an advantage while developing CLOUD—both had developed games in the past. "I was making MUDs and modding DOOM with my friends back in the bulletin board system days, but had never thought of it as a potential career," says Santiago.

Chen's early experiences playing and building games also stretch far into his past. "I started studying computer programming when I was in third grade. And I started making games then, too," he says. CLOUD is actually Chen's seventh student-developed game. "I'd say this one adds a lot weight to my confidence as a gamemaker."

As Chen made more games, he says his primary job functions and interests changed, too. "My role shifted from programmer to digital artist and animator, and then moved to mod-creator and game designer," says Chen. "Now I consider myself to be more like a director, because every element in the game development process is equally important to me. I tend to emphasize the consistency of video game direction in every aspect of the game."

In 2005, CLOUD received a USC Game Innovation Grant, which supports the production of pioneering games by giving students space, time, and resources to complete more experimental projects. Given by the Interactive Media Division of USC's School of Cinema-Television and EA's Game Innovation Lab, the grant builds on the strong foundation of the School of Cinema-Television, stressing creativity of expression, innovation, experimentation and excellence in execution, according to Chen and Santiago.

Grant recipients are encouraged to practice an iterative process of design, prototyping and playtesting with the integration of player feedback at the heart of the process. This "play-centric" process allows student game designers to take risks with their ideas and to learn from their experiments.

For Santiago, developing CLOUD was a positive experience that resulted in her developing authentic skills that are valuable in the video game jobs market. "I learned a lot about how to manage a team, raise funds, and steer a creative project through the murky waters of bureaucracy, which is extremely important to learn if you intend on making games for living," she says.

Although her experiences developing CLOUD often reflect those found in a commercial game studio, other facets of production were unique to her setting and allowed her to experiment more with development process. "The project was housed within the safety net of a university. We made a lot of mistakes along the way, which is what really made it an incredible learning experience. We had our colleagues and faculty to point out our errors, support us, and help us out."

"In school, it's important to take risks," Santiago says. "It's a safe environment in which you are surrounded by passionate people. It might be the only place you can really take these kinds of risks. CLOUD was an experiment in game design, to push the communicative boundaries we saw games trapped in. And there were successes, but many failures, too." For example, the duo says that one element of the game they would have done differently in hindsight is the control scheme, which became too complex in the final version. "We know how to make the games people already enjoy playing. By taking a risk with CLOUD we got to learn about making new types of games that are yet untested," adds Santiago.

When asked to share the three most valuable things she learned making CLOUD, Santiago says 1) always prepare for the worst-case scenario, 2) take risks while in a school environment, and 3) gamers are an incredibly supportive audience. "Gamers are the best fans, ever. Hands down. I don't know why everyone isn't making games, because when people on the other side of the world are saying how much they love every person involved in making a beautiful game, well, it's just an incredible feeling."

Chen's main piece of advice to anyone who wants to find a career in game development is simple: "Start early, start with passion. Have a clear goal of what you want to do in five years and work as hard as you can."

Santiago also believes that future game developers need to understand that this industry relies on a "show me and prove it" framework. "Learn how to prototype!"

CONTINUED ON PG 40

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OCULAR INK

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DEVELOPED BY

John Edwards
Justin Kim
Chris Goiney
Stuart Young

TOOLS USED IN DEVELOPMENT

Visual Studio
Milkshape
A sound editor

JOHN EDWARDS BEGAN HIS HIGHER EDUCATION IN the field of physics and computer science at Grinnell College in rural Iowa. Many of his friends were studying at the University of Washington at the time, much closer to his home base of the greater Seattle area. Alone on the rolling plains, surrounded by farmland, Edwards felt like a city boy out of place. "Iowa encouraged me to sit inside and code at the computer more," he says, which eventually lead to OCULAR INK, a web-based game in which the player, a floating eyeball equipped with a paintbrush, affects gameplay by painting surfaces.

Edwards admits that he wasn't engrossed in schoolwork at Grinnell, a very small (about 1,500 students) and academically rigorous liberal arts college. Although he did complete his degree, he is reluctant to share much about his involvement in academics. According to Edwards, Grinnell was probably not the right fit for him.

"Grinnell is not designed for people who want to make games," he says. "But making games did take a large part of my time while I was there. If school were something I wanted to invest in more, I wouldn't have made games."

When Edwards decided to make OCULAR INK on his own, outside his regular university coursework, he realized it would take tremendous dedication, almost all of his free time, and probably a few more people. He teamed up with several of his friends at the University of Washington and began serious development on the game while working with this remote team.

"We had weekly meetings over instant messenger," he says. "The size of the project was more than we could really handle, though. I was able to work on the technology and advance that very well."

Still, communication was the project's main barrier, particularly because it inhibited the development of gameplay. The geographic distance and inability to meet face-to-face with his teammates kept OCULAR INK from earnest development.

Edwards returned to the Seattle area during his academic break. With his time off, he decided to turn game development into a full-time job, albeit unpaid. Using a ping-pong table and other mismatched pieces of furniture, Edwards and the OCULAR INK team set up shop. Stationed in ad hoc cubicles in Edwards' parents' basement, the team finally was able to work and communicate more effectively.

Like the other students whose games won IGF awards, the group had developed other games in the past as well, so OCULAR INK did not suffer from as many general mistakes caused by inexperience.

The developers on Edwards' team were programmers and game designers, but none were strong artists. Additionally, because the tools they used in development were either extremely inexpensive or free, they lacked an industry-standard art package. Instead of feeling a pinch, the OCULAR INK group made the best of the skills and tools that were available.

In terms of funding, Edwards and his team were lucky to have supportive family. "We were kids. We were basically funded by our parents. We used cheap tools, too. Justin, our designer, had bought Visual Studio to do a HALF-LIFE mod. We used Milkshape as our art software, and bought three licenses for $30 each. We had to constrain our design, though. Milkshape, for example, is good for making spheres," which explains why OCULAR INK's characters are mostly simple, disembodied eyeballs, says Edwards. This solution to their lack of artistic man-power, he says, has given the game an identity that's unique. However, the aesthetics do make the game "slightly inaccessible to some," he adds.

"With more money, we would definitely get a decent 3D modeling package," Edwards explains. Another change he says he would make to the development process, given more money, would be to hire a "stable of people who could prototype. There were times when we had a number of ideas going that sounded compelling, but you don't know until you try it out."

As a mostly self-taught gamemaker, Edwards says he relied on a number of online and print resources to keep his technical knowledge up to snuff. He often visited www.gamedev.net, he says, for programming advice, and www.gamasutra.com for industry news. The book Game Architecture and Design (2003) by Andrew Rollings and Dave Morris was another early influence that Edwards refers to now as "The Design Bible." Another library source he refers to is Andre LaMothe's book on programming, Tricks of the Windows Game Programming Gurus (2002), a title that fostered Edwards' enthusiasm for games through its upbeat and cheery style.

Reading material is one thing and experience another, though each has its purpose. "I wanted experience from making games, and theoretical background from reading," says Edwards.

Edwards advises other students who are interested in game development to find their own path, becoming self-taught as much as possible. "A game design school is going to teach you what you need to know to make games. You have to make games to pass your classes. But you can't wait for professors to teach you what you need to make a game."

COLORMENTAL

www.willdull.com

"FOR A LONG TIME, I KNEW THAT I WANTED TO BE IN THE GAME industry, but I didn't know which route to take. I remember back in high school, I'd sit in study hall and write map blueprints for HALF-LIFE. Then, after school, I'd go home and try to put it together," says Pennsylvania-native Will Dull. "None of my HALF-LIFE maps where anything amazing, but they allowed me to get my first taste of game development."

"I took some computer math courses during high school that gave me my first taste of programming. There I learned the basis of code logic, structure, and collision detection with such languages as Basic, Visual Basic, Pascal, and C. I liked these classes enough that I wasn't as afraid to try to become a programmer," says Dull.

When Dull realized he wanted to get into game development professionally, he moved to Orlando, Fla., where he attended Full Sail, a post-secondary school that specializes in film, music, animation, and video games.

Dull enrolled in the academy's Game Design and Development degree program, which is where his game, COLORMENTAL, was born. As part of its game development program, Full Sail requires students to create a game from concept to finish. "During the last five months of school, we had to put together a game, and this is how COLORMENTAL came to be," Dull explains.

COLORMENTAL is a side-scrolling platformer. The main character, Roy G. Biv, lives in a world where all the color has been sucked out by Huemans, although the Huemans themselves appear in color. Roy's task is to defeat the Huemans, absorb their powers (fire, ice, lightning, air, poison), and restore color to the world. Every time an enemy is killed, all the colors from their character return and replenish the world. The game therefore becomes more colorful as the player succeeds.

Making video games is rarely, if ever, a solo process, even for seemingly small web-based games. At most academic institutions where video game development is supported, students form groups of anywhere from four to 25 people. These groups function sometimes like teams, and other times like brawling siblings. With only six people in the group, Dull describes his experiences as being more business-like.

"When we started development in June [2005], I didn't know any of the members of our studio. Even though I had a few classes with them, we had never really talked. We were very professional about this school project and took the time to really make sure that we all got what we wanted out of this experience," says Dull. "Everybody wanted something that they could be proud of and to have a great time putting it together."

Everyone on Dull's team had made a game previously because they all had completed the necessary work to earn an Associate's degree, which at Full Sail also requires a finished game. Dull says that COLORMENTAL gave him a second chance to showcase his skills in the best possible way.

"I really wanted to compete in the IGF Student Showcase, and I brought up the idea with the group. They thought that getting in would be amazing. We came to a consensus that if we wanted to create a game that was going to compete with schools like DigiPen (their students have much longer periods to create games), and four-year universities, we would need to work the next five months like a full time job. So, we laid out a schedule of Monday through Friday 9 a.m. to 6 p.m., plus Sundays when we were approaching our three main milestones: alpha, beta, and final."

Through the team's dedication, COLORMENTAL was accepted as a one of the 10 winners in the IGF Student Showcase.

"I believe that if you want something bad enough and you are willing to work hard enough, you will get what you want. If what you want is a job in the games industry, do your research and make sure it is really what you want to do before you spend any money trying to go to school," Dull warns. "There are many fine positions in the games industry. Look at all them and see what interests you. This industry is very fast-paced and isn't for everybody. But, the satisfaction of going to work every day to create a video game that millions are going to be playing is a nice reason to get out of bed every morning."

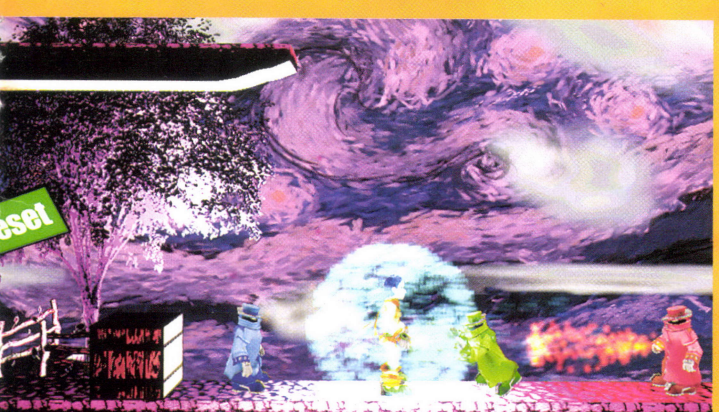
Following COLORMENTAL, Dull worked at Full Sail as a lab specialist, gaining experience by helping other students with calculus, linear algebra, and physics. After a few months, he found a job at Electronic Arts Tiburon, where he is now employed as a software engineer.

DEVELOPED BY

Will Dull
John Boyer
Chris Aardappel
A.J. Bolden
Cory Lamontagne
Andrew Davis

TOOLS USED IN DEVELOPMENT

Visual Studio .NET 2003
Maya
3ds Max
Photoshop
Alienbrain



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>> darius kazemi

THE BIG MAN ON CAMPUS

EFFECTIVE NETWORKING IN THE GAME INDUSTRY

IT'S TOUGH TO BREAK INTO THE GAMES INDUSTRY. THERE'S A glut of people eager to make video games for a living, and the demand for developers with no industry experience is incredibly small. How does a fledgling candidate stand out in that crowd?

Assuming you're just as talented and hardworking as your competitors, you still need an edge—and your network is that edge. As in other industries, it's not what you know, but who you know that will land you a job.

You don't have to be the relative or best friend of a game developer for networking to work in your favor. You can build a large web of contacts in the game industry even if you've never actually been employed at a game company. Part of the trick is learning how to leverage those contacts without "using" them (because nobody wants to feel used), and part of it is knowing exactly who should be in your network—the answer may surprise you.

You can make a lasting impression on all the people you meet with a couple of simple strategies. All the advice herein is born of my personal experiences of trying to break into the game industry.

Before you order 1,500 new business cards for yourself, be sure you've got the real basics covered. One: You're comfortable talking to people. Two: You have a lot of talent and something to show for it. Most importantly, three: You know a ton about the game industry—not just the games, but also the people, the business models, and the war stories. If you don't meet one or more of these fundamentals, be prepared for some double duty until you're thoroughly caught up.

DARIUS KAZEMI *earned his first video game development internship by developing a network of contacts in the industry. Two years later, he found his first industry job. Email him at* **dkazemi@gdmag.com.**

THE BIG MAN ON [illegible]

WEAK TIES

The most important thing people don't understand about networking is that it's all about weak ties.

Back in 2003, famed blogger Joi Ito (http://joiito.com) wrote an article called "Jobs and the Strength of Weak Ties." The article is worth reading in its entirety, but Ito's main point is this: There exists an axis of personal ties, from strong, such as family ties, to weak ties that also transcend local relationship boundaries, both socially and geographically. Landing a job, says Ito, is more likely to result from a weak tie than a strong one.

When I talk about a vast personal network, I'm largely talking about weak ties. Weak ties make up an enormous portion of my contact base. If I were to count the number of people in the game industry to whom I felt particularly close, the total would be about 20. If I included my weak ties, though, I would probably count hundreds.

It's important to understand the difference between weak and strong ties. Strong contacts are people whose couches I could sleep on if I needed to. The weak-tie contacts are folks I would feel comfortable emailing every now and then; I might have lunch with them once a year if I happened to be in their hometown on business or on vacation. And there are hosts of people in between.

If my network were nothing but strong ties, the whole world would be like family—which could get a little creepy. On the flip side, don't underestimate the strength and utility of weak ties. Here's a quick example of the very simplest use of the weak tie: identification. Let's say I'm being interviewed for a job by someone I've never met before.

"So you told me you've been with this company for a year," I say, because the interviewer mentioned that on the phone. "Where were you before this? What did you do?"

She tells me she worked at Company Y, and I remember that I know someone at Company Y. I mention his obsession with NASCAR, and she laughs, indicating recognition and identification.

The trick is I don't know the guy at Company Y very well at all. We spoke for 20 minutes while waiting in line for a lecture at GDC, but that was enough to make him a weak tie. And because I take notes on every conversation I ever have at a conference, and because I review those notes before I go to an interview, I was able to make a previously nonexistent connection (between myself and the interviewer) a little bit stronger.

Weak ties are great for several reasons. They take relatively little effort to maintain. You can have hundreds of them, which greatly increases your chance of having a mutual friend every time you make a new contact. Weak ties are also easy to build at first. If you do one really nice favor for a weak tie, or they do a favor for you, you have probably doubled the strength of your tie to that person. Like experience points in a role-playing game, the returns diminish over time.

TOOLS OF WEAK TIES

Strong ties are easy to keep track of. You know your best friend's email address or phone number off the top of your head. You can call your parents just to say hi. Keeping track of weak ties, on the other hand, is more complicated. This is why it's very important to take good notes. Note taking is an incredibly useful way to boost your memory about people, which in turn helps you make connections between other connections (which in turn makes you an expert networker).

Many game developers practice the most basic form of note taking. After meeting a new person, they skip off to a quiet corner and jot down a few notes on the back of the contact's business card to help them remember facts about that person. For most people, this is where the process ends. However, for successful networkers, this is just the beginning. What you write on the back of the card should only be enough to jog your memory six hours later—when the real note-taking begins.

Whether I crash in a hotel room after an 18-hour day at a conference, or come home from a three-hour long local event, or return from an interview at a game company, I always do the same thing. I sit down and either in my paper notepad or on my PDA, I write. And I write.

First, I stack all the business cards that I collected that day. Reading through them one by one, I copy down all the information on the business card, which helps to make permanent information that could otherwise be lost on my desk or in my wallet. Additionally, writing reinforces the information in my memory. Next, after I've copied down all the information from the card, I jog my memory with the notes on the back and write a few sentences about their physical attributes, personality, under what circumstances we met, and what we talked about, including their non-game interests.

A typical entry looks something like this, which is a composite of notes I've taken on several real people:

John Doe
Programmer, Company A
www.johndoe.com
johndoe@address.here
AIM: johndoegameguy
Tall, shaved head, wearing a leather jacket. Rimless glasses. We met over dinner at that Japanese place near the conference hall. He is friends with Jane, who introduced us. He programs serious games, but would like to get into the more traditional entertainment sector. John really liked the Game Developers Rant session this year, and he also likes Noah Falstein's columns in *Game Developer*. He's from Tulsa, Oklahoma, and thinks California's too hot. Very laid-back. Likes beer.

Compiling notes like this for every single game developer you meet may seem like overkill, but in fact, there's still more you can do. Remember, this is a highly competitive industry, and you have to be willing to make every extra effort to set yourself apart from all the other inexperienced students vying for a job in video games.

Every few months, I go back to my permanent records of contact details and I read them all. At this point in my networking career, I'm looking at notes from four years of Game Developers Conferences, IGDA chapter meetings,

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"Cogswell Polytechnical College not only teaches you the technical side of making games," says Jeremy Welch, Cogswell's Game Club President, "but it also teaches the theory behind games. This helps us create games that are exciting and engaging for the players."

Game Club member, Tobiah Marks adds, "Of the schools I checked into, Cogswell offers the best balance of art and programming and the chance to expand our learning outside the classroom." The Game Club recently collaborated on Human Invaders, a two player shooter game complete with physics aspects, for Cogswell to use as a demonstration at the Game Developers Conference in San Jose in March 2006. The club took the game from concept to completion in one day.

"Another important aspect of Cogswell," says Game Club member, Jason Matthews, "is that Cogswell gives students opportunities like internships with leading industry companies and helps us make connections to get our careers started."

New students initially are attracted to Cogswell because they want a school that specializes in the kinds of exciting fields (such as videogame design, animation or digital audio) they plan to pursue. "What makes Cogswell unique is how deeply our programs interact with each other," says Dr. Timothy Duncan, Dean of the College.

"For example, modern videogame production involves crafting a narrative or setting which is the basis for game play, creating a visual content, modeling and animating characters, creating landscapes, programming game play, creating musical themes and recording dialog.

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Max Sims
An award-winning industrial designer whose work has been featured in ID, rana, and Information Architecture and exhibited at the Milwaukee and Denver art museums, Max Sims teaches 3-D modeling and rendering courses at Cogswell. He was the lead author of Inside Maya 5 by New Riders Press and is president of the San Francisco Bay Area Maya users group.

"We do all of these things at Cogswell in our major degree programs. In fact, students in these various disciplines take many of the same classes, providing ample opportunities for collaboration and involvement in projects that have real professional value," Duncan adds.

Cogswell is also invested in the value of a general education. At least a third of required coursework encompasses math, science, humanities and social sciences. The difference is that Cogswell has created innovative courses linking these essential subjects to the students' chosen specializations.

"I took my first step toward a career in the game development field at Cogswell Polytechnical College," says Nathan Webb.

"The animation skills, techniques and practices I learned at Cogswell helped prepare me for my current position as a Senior Animator for Sony Computer Entertainment on their NBA licensed games."

"I even had the opportunity to help a fellow alumni get an animation position here because I recognized Cogswell on his resume and remembered that I had met him," adds Webb.

Graduates have gone on to careers with Activision, Cryptic Studios, Double Fine Productions, Electronic Arts, High Moon Studios, Legend Entertainment, Maxis, Sony Computer Entertainment, Toys for Bob and other top companies.

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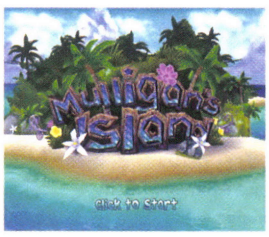

THE BIG MAN ON [illegible]

interviews, lectures, and other events. Still, it only takes about 30 minutes for me to review everything, and sometimes it's a real joy to relive these conversations and memories in my head.

By constantly refreshing and reinforcing this list of people I've met, I gain several benefits. First, it's easier for me to remember names and connect them with faces and accomplishments. Recently at an IGDA Boston chapter meeting, I saw someone who looked familiar. I instantly remembered his name, the company he works for, and the project he does in his spare time. He was someone I had met at seven months earlier, and the only reason I remembered him was I had read my list the previous week. I said hello and later introduced him to my friend who does similar work.

Which leads to another point: The notes you keep help you make connections within your network. This is extremely powerful. For example, I am in no position to offer jobs to any of my friends. But when I meet someone at a conference who likes strategy games, I can make a note of that; and two days later, if I see him in the same room as another contact who is a high-level manager at a company that makes strategy games, I can introduce them. Bang. Even if the manager doesn't end up hiring Mr. Strategy Games, the hopeful hire is grateful to me for helping him out, and the manager is impressed that I'm such a good networker. Even before I had an industry job, I was able to do this kind of networking for professional developers.

WHO'S NUMBER ONE?

Some folks think that networking is about finding important people and befriending them. They couldn't be more wrong. Networking is about finding excellent people and befriending them, which makes the task somewhat easier than it's perceived to be.

For example, let's say it's your first day at your very first Game Developers Conference. You are completely star-struck because you've eyed the schedule and who's on it but Mr. Big Stuff himself. Warren Spector is giving a talk at 3p.m.! Will Wright the next hour! And Peter Molyneux tomorrow! "I have a chance to meet these people," you say to yourself. "Whatever will I do?"

The answer is simple. Don't bother. I mean, yeah, go to their talks and hear what they have to say. But don't bother trying to talk to them. Spector, Wright, and Molyneux will be hidden 30 feet deep in admirers and fan boys. You will have to wait an hour just for the chance to say, "Mr. Wright, I love SIMCITY," before being booted out of the way by the guy behind you who had to wait an hour and five seconds to get his words in.

In other words, the big honchos aren't worth talking to—not at this stage in your career, at least—for three reasons. First, they won't remember you. Second, they are exhausted from traveling, presenting, speaking with journalists, and networking among their own colleagues. Third, you are likely to blunder and say something unintelligible like "Buh ... buh ... BLACK AND WHITE rules!" Or worse, you pitch a game idea. (For the love of all things sacred, don't ever pitch to the Will Wrights of our industry.)

Being star-struck isn't so much of an issue at an IGDA chapter meeting, a much smaller scene, where Mr. and Ms. Big Stuff will already be friends with most of the people there. But that's advanced networking, something to be tackled once you've mastered the basics and already have a pretty decent network.

If you want to find someone with a lot of experience who can give you advice, here's a hint: there are people—smart people who have been in this industry for decades but who don't have throngs of admirers. These types of people are usually more than willing to share some words of advice to a young upstart, especially if you know some history.

How will you know who these people are? You won't at first, but that's why your job is to talk to anyone and everyone. You might be surprised who the innocuous woman sitting next to you is.

FELLOW NEWBIES

Some of the best networking you will ever do in your entire career will be with a wholly unglamorous class of people. I'm talking about people just like you—students, people trying to break in, and newbies (newly hired, entry-level game developers).

Your compatriots will be the easiest people to talk to at any event because you're all in the same boat. You've experienced the same disillusions. You share the same hopes and dreams. You're probably the same age. Make friends with your fellow newbies. Form a posse. Hang out whenever you have no one else to hang out with.

Making friends with a lot of these people is fairly simple, but what's the benefit to you? If you make 20 student friends, I guarantee you five of them will be working in the industry within a year or two, even if you aren't. For instance, I know two guys working as professional game developers whom I met when we were all students. For the rest of my life, I will be able have drinks with these people and chuckle about the time we were all stranded on a bus at GDC. Four years ago, we were a bunch of clowns. Now, we are professionals who can swap industry advice.

In the end, networking boils down to making friends with excellent people, not necessarily "important" people. If you talk to anyone and everyone you meet in the game industry, and you're filtering for excellence instead of a title or a company, you're doing the right thing. Excellent people tend to become important people, and who doesn't want to be friends with Mr. Big Stuff before he was big?

SEE AND BE SEEN

Networking is a pretty useless activity if the people you meet don't remember you. Thus, one of the major projects you should undertake is to create a persona. You need to be remembered for at least one thing in particular. My approach is two-pronged, utilizing both the business cards I hand out and my physical appearance.

CONTINUED ON PG 48

I could use some more friends.
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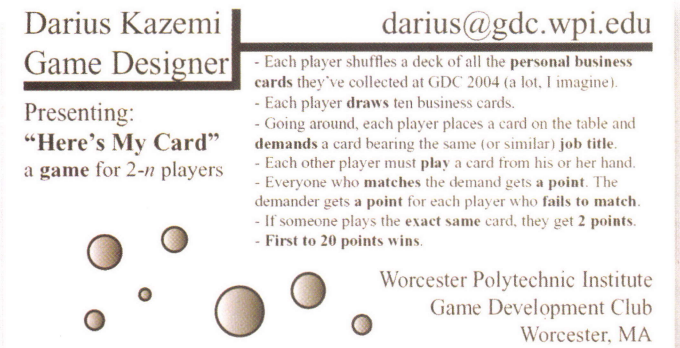
THE BIG MAN ON [illegible]


Darius Kazemi
Game Designer
darius@gdc.wpi.edu
Presenting:
"Here's My Card"
a game for 2-n players
- Each player shuffles a deck of all the personal business cards they've collected at GDC 2004 (a lot, I imagine).
- Each player draws ten business cards.
- Going around, each player places a card on the table and demands a card bearing the same (or similar) job title.
- Each other player must play a card from his or her hand.
- Everyone who matches the demand gets a point. The demander gets a point for each player who fails to match.
- If someone plays the exact same card, they get 2 points.
- First to 20 points wins.
Worcester Polytechnic Institute
Game Development Club
Worcester, MA

It's a business card with the rules of a game that can be played entirely with business cards. Although it's certainly memorable, not many people remembered me for it.

A year later, I revised my strategy, which worked wonders. I debuted a new card (see the lower business card) at GDC 2005. The minimalist look of the card is striking relative to some business cards in the game development industry, which may have gloss and tints that change with the light, or embossing, or any other snazzy piece of eye candy.

However, my business card design has three major benefits. First, the tagline "Producer, Designer, Gadfly"; people remember "gadfly," especially those who get the reference. Second, the quote "A generally useful guy to know," stuck out in many people's minds. By the end of the conference, people I had just met were introducing me to their friends as "Darius, a generally useful guy to know." Third, the iconographic portrait, which sports my most memorable traits—glasses, beard, and an orange shirt—is something I subconsciously stole from the developers at Harmonix.

I suppose I should explain the orange shirt.

If you're handing someone a business card, it means you're meeting them in person, and you want them to be able to recognize you no matter where they might meet you in the future. My solution is to always wear an orange top. Be it a shirt, sweater, or jacket, it's orange—especially at industry functions. At every conference, IGDA meeting, and interview, I wear orange. It's what I'm known for. As a bonus, I can put an orange shirt-clad stud on my business card and it will be accurate. There are several memorable game industry figures who have adopted this sort of tactic. Game design lecturer Ernest Adams has a near-famous top hat. Daniel James of Three Rings (PUZZLE PIRATES) wears a tri-cornered hat. This tactic is especially valuable if you're consistent about it over a long period of time.

CONTINUED FROM PG 46

Business cards are the personal currency of any industry. If you show up to an industry event without a business card, you might as well be playing football without a helmet, preparing food without a knife, making metaphors without your imagination.

An acceptable business card needs to convey only a very small amount of information:

- full name
- title (if you don't have one, try "starving student")
- company (if any)
- email address and phone number
- city and state
- your personal or company URL (you do have a web site, right?).

That's really a pretty tiny amount of information to fit on a single business card, which in the U.S. is 2 by 3.5 inches, leaving you a lot of room to fit extra material. It's tempting to fill up the entire card with text, which is what I did in 2004 (see the top business card).

GETTING IN BEFORE YOU NEED TO GET IN

None of this is as easy as it might sound. Networking takes a lot of time. In fact, my last piece of advice is start early. The most obvious benefit is that upon graduation (a college education is part of your plan, right?), you'll have connections with industry people right out the gate.

But there are other benefits as well. For example, the years you will be networking while a student are also years you won't be busy hunting for a job. Seriously, it's not sensible to apply for jobs until after you finish your degree. But, you can still use your college years to get started in your career; time spent networking but not job hunting is wonderful. You get to hang out with people without the embarrassment of having to ask if they're hiring. You can even ask them what they look for in a potential hire, no strings attached. That's valuable fieldwork. People love to hear that you're not looking for a job, so be sure to let them know that as soon as you meet.

So start early, build lots of weak ties, and be interesting and memorable. It's a small industry, and if you really are good at what you do, word will get around faster than you think.

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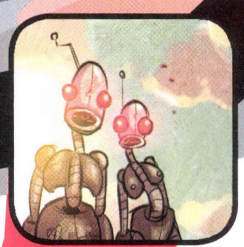

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CHASE THE CHICKEN

IN CHASE THE CHICKEN, THE PLAYER ASSUMES THE ROLE OF Chase, a frantic chicken whose goal is to escape the blade of an oversized and over-zealous chef. What follows is a chaotic pursuit through a South American village with Chef and other characters nipping at Chase's tail feathers, a setup loosely inspired by the opening sequence from the Brazilian film *City of God* (2002).

The concept for CHASE THE CHICKEN came from a number of people's ideas. Several of us wanted to follow through on the idea and create a fully finished product. We discovered that the Art Institute of Vancouver's Game Art & Design program included a six-month game development course, which seemed like it would provide the structure, tools, and supporting knowledge we would need to finish the game.

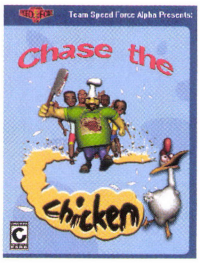
The six-month course was (for many of us) one of the primary reasons we chose to attend the Art Institute in the first place. During the course, we pitched our own game ideas, assigned and assumed roles in a team, and took a game from concept to completion. A game team usually consists of 15 to 25 people and uses an original or existing game engine, typically UNREAL TOURNAMENT or Valve's Source. We chose to mod UNREAL TOURNAMENT 2004. Our game idea was a hard sell to potential teammates because of its overtly comical theme. But once we gathered a team, we became known as Team Speed-Force Alpha.

Laden with as many morsels of silliness as we could muster, CHASE THE CHICKEN features a rear-view camera (called the "chase cam"), frenetic villagers, explosive eggs, a level-

MÄRTE LUME *is an up-and-coming game producer and designer who is currently working on a number of educational game projects. Email him at* ***mlume@gdmag.com****.*

CHRIS MARTIN *is an aspiring game designer who's still chasing chickens in his sleep. Email him at* ***chlmartin@gdmag.com****.*

GAME DATA



DEVELOPER
Team Speed-Force Alpha

PUBLISHER
Art Institute of Vancouver - Burnaby

NUMBER OF DEVELOPERS
20 (13 artists, 5 designers, 2 programmers)

NUMBER OF CONTRACTORS
6

LENGTH OF DEVELOPMENT
8 months at 2 or 3 days per week

RELEASE DATE
May 25, 2006

PLATFORM
PC (Windows), UNREAL TOURNAMENT 2004 modification

SOFTWARE USED
UnrealEd, WOTGreal, Photoshop, Maya

PROJECT SIZE
170MB (compressed), 393MB (uncompressed)

WEBSITE
www.chasethechicken.com

objective locator, and a city covered with chicken- and Chef-related paraphernalia.

This postmortem is an account of our project and the challenges, successes, and chicken-related jokes we faced while developing it.

WHAT WENT RIGHT

1 **CONCEPTUAL CONSENSUS.** I had been at the Art Institute of Vancouver for about a year when the time came to pitch CHASE THE CHICKEN to a prospective team. Although I had seen dozens of designers and artists come up with all sorts of crazy concepts for games in the past, the idea of a chicken being chased down the street by a mob of people was still a tough sell.

Perhaps everyone in the room during the inaugural meeting was stunned or speechless, but no one stood up to voice an alternate concept. After some debate, CHASE THE CHICKEN was hesitantly confirmed by a 13 to 7 vote. In a somewhat surprising twist, the naysayers were soon quieted (or perhaps drowned out) by universal praise from teachers, student colleagues, and just about everyone else who heard about our idea.

Because the concept was very accessible, we felt we would be able to reach both casual players (male and female alike) as well as the more specific mod-downloading crowd.

A strong appreciation for the concept helped us immensely throughout development in two ways. First, the team was almost always excited to work; and second, convincing external forces to help with the game, whether in audio or animation, was fairly easy. This second point was important because we had predicted the audio and animation of CHASE THE CHICKEN to be huge selling points, enhancing the overall "fun factor" of the project as a light-hearted and family-oriented experience.

During the four milestone presentations and every time the game was on public display, we noticed that the game's concept alone sold it to the audience. Presenters often found that they did not need to explain what was happening on the screen because the audience bought into Chase's situation and the game's absurd humor right away.

Additionally, we benefited from having a solid concept at the start because it was easy to build upon. However, soon into development, it became apparent that our initial goals would be much harder to achieve than we thought.

Despite our strong concept, we were subjected to our fair share of chicken jokes. On some level, we probably deserved it. Often, we would explain the game to people whom we had just met to see how long it would take them to suggest we change the name to Choke the Chicken. It got old—fast. In fact, if you were already thinking it, shame on you.

2 **ENERGETIC TEAM.** Sticking to the vision and timeline established at the beginning of a project can be challenging, especially when every member of the team has other primary obligations besides the game. In our case, high team morale

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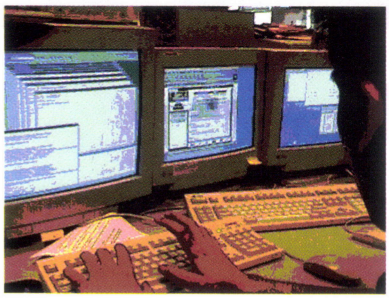

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"I secured a job at a games company before graduating, based on the portfolio of games development work I produced while studying at Abertay." - Andrew Heywood, MSc CGT Graduate

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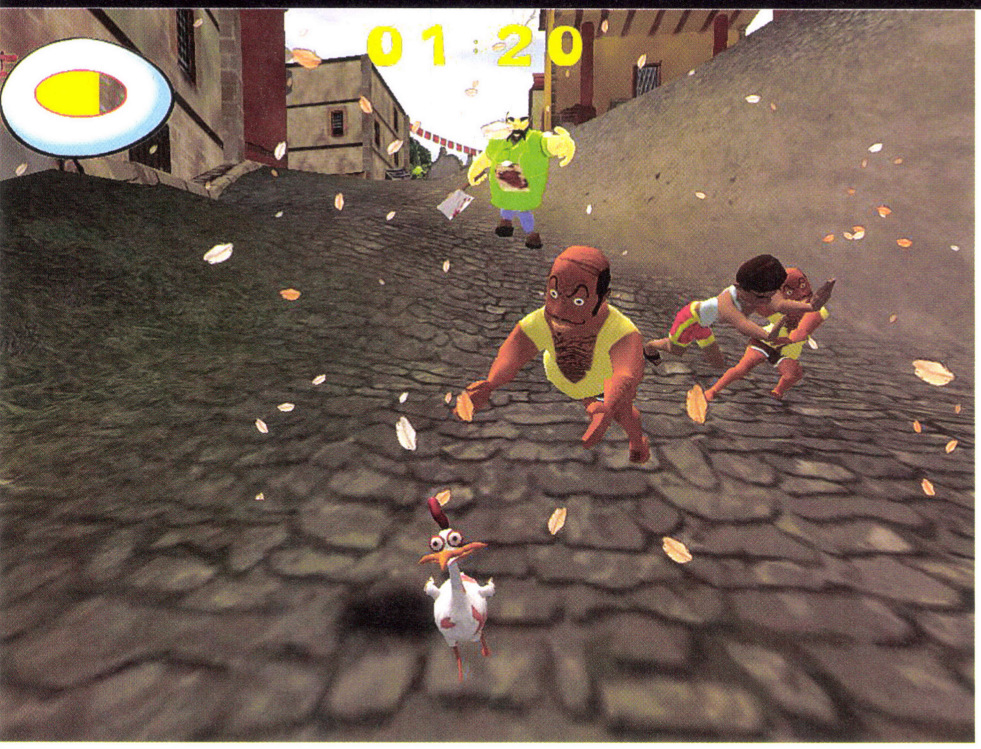

carried us through difficult times and even helped us to improve productivity in the second half of the project when several key people learned how to better perform in their roles.

Although a core team emerged and bonded significantly over many late nights of pushing to implement a feature or hit a milestone, everyone was encouraged to work as a team, without "walls" forming between the core team and the rest of the group.

Over the course of our in-class studio time, we developed a unique team culture, which further supported our energy level and enthusiasm for the project. We used jargon that only our teammates could understand, started up an online store to sell Team Speed-Force Alpha merchandise, and hosted a number of social events.

Since our professors could not reward good work with money or even grades (every team member earned the same grade regardless of individual contribution), it became important to recognize outstanding achievements and dedication through some other means. We gave out "worker of the week" awards as well as promotions to people who took on increased responsibilities.

3 **SUPPORT FROM THE ART INSTITUTE OF VANCOUVER.** It might seem out of place to thank the school that required us do the project in the first place, but CHASE THE CHICKEN would have not been completed without the support of the institution. First, advice from industry-experienced faculty members was invaluable. Second, computer labs were open to us around the clock, even after graduation. Plus, the school allowed us to install software that probably would have been denied in most academic institutions.

Third, we used the school's internal resources to find (and utilize) students of other disciplines—such as animators, composers, sound engineers, and film students—as well as a recording studio where soundtrack sessions for Chase became a legendary affair.

At the end of production, students who have completed their games in a particular semester present them to an audience publicly. Successful games, such as CHASE THE CHICKEN, can earn additional exposure by being invited to appear at other Art Institute venues, such as the Portfolio Show, guest speeches, or various open house events. Another point worth noting: students of the Art Institute own the rights to all intellectual property they create at school.

4 **IT'S A WIKI-WIKI WORLD.** Our team owes a lot of gratitude to another team at our school, 2Bit-Monkies, for advising us on how to set up a Wiki to communicate the vision of design and art to the entire team. This was especially important during the first half of the production, when in-class development time was limited and we had to rely heavily on online communication.

Wikis enable anyone with web access to create, update, or link documents through an online interface. Because all changes made are tracked, the most current version of every document can always be found at a known location. Most team members felt that our ChaseWiki helped tighten the art and design direction.

Another tool we experimented with but found less useful than the wiki was the online project management software DotProject. We opted to abandon this tool, deeming it too advanced for our purposes.

For scheduling, we didn't need a sophisticated tool either. Most of the artists on the team would rather not have to use spreadsheets or tables at all, so we used the simplest tool we could find: color-coded Excel sheets. These schedules were easy to update and can be opened in a browser through FTP. They allowed us to produce useful reports with the click of a button. We also used Microsoft Project to some extent, but for tracking changes, Excel proved a better choice. Balancing these three tools to best meet our needs definitely took some time to figure out.

5 **POLISH TO A SHINE.** Although the final presentation of CHASE THE CHICKEN (at the end of the academic term) was a roaring success, the game was in no state to be released to the public. We spent several months afterward polishing the game to a more finished state.

For example, the arch-nemesis, Chef, was meant to be a threat to Chase consistently, but his character often got lost within the level, unable to find the player. Additionally, game assets were not optimized for download, which is how we planned to distribute the game.

Another problem resulted from us playtesting our own game. The more we played CHASE THE CHICKEN, the better we became, so we didn't initially realize that the game was too hard for an average player to enjoy.

Over two months after the official completion of the project, a few team members got together several times a week to make the game easier and more accessible. We added a few extra features that were originally cut to finish the game on time,

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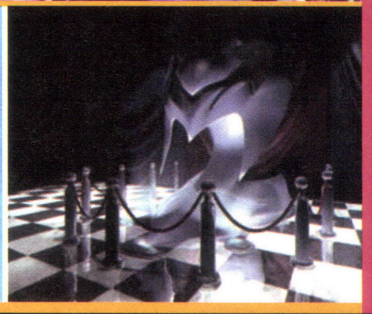

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such as level objective locator, a Top Chickens Table (high score chart), quick reference Control Map, and opening cinematics.

We are very happy with the final product. It does not remind players of UNREAL TOURNAMENT 2004 in any way and is very close to the fun, re-playable game we had originally envisioned.

WHAT WENT WRONG

1 **SHORT ON PROGRAMMERS.** In game development institutions, it seems that for every one programmer there are 10 artists or designers. This shortage of programmers translated into some delays in building the game. And since it's no fun for the whole team to wait while the programmers assemble the artwork and other features into a final game, the team often felt frustrated and disconnected.

To make matters worse, programmers had been told in other classes to forget about their team-made games and instead focus on putting together a professional portfolio.

We were very lucky to have two enthusiastic and hard-working programmers on our team who came through marvelously, despite having to simultaneously produce demo reels. That said, we still barely completed the project on time. Having scarce programming resources resulted in a number of important gameplay features being added too late in development, and thus not being able to go through as much testing and iteration as we would have liked.

We could have made up for the scarcity of programmers if our designers had learned UnrealScript. Another resource that would have been helpful to have is good documentation from previous Art Institute mods. The documentation we did have was typically incomplete or not thorough enough to be really useful. Hopefully, as the institute begins to incorporate new game engines, the instructors will be more diligent about requiring students to write thorough documentation.

2 **PRODUCTION COINCIDED WITH DEMO REELS.** One of the biggest challenges for all team members during production was creating graduation demo reels while simultaneously working on our game. The solution we came up with was to give everyone ownership over various parts of the game and their corresponding documentation and artwork, and encourage each person to included these assets as part of their demo reel.

The unpolished game prototype, which we submitted for our grade, was completed a month before graduation. Thereafter, the team split, with a handful of people continuing to work on the project, improving the game to our original vision and the other handful choosing to focus on their demo reels instead. Surprisingly, a month later when it was time to review the demo reels, the team members who graduated with flying colors were the ones who had focused on polishing the game rather than their reels.

In many academic game development programs, working on a team project is discouraging because it's hard for potential employers to identify an individual's contributions and talents. In making CHASE THE CHICKEN, we tried to avoid this problem by dividing the project into areas of ownership as much as possible, clearly labeling them on a website or wiki.

3 **WORK ETHIC, SKILLS, AND ATTITUDE.** In our experience, especially for leads and designers, making CHASE THE CHICKEN was by far the most valuable experience that came out of the 18-month program at Vancouver.

The Art Institute of Vancouver is a respected provider of game art and design education, yet some students only enroll here because they have prominent financial support and an affinity for playing games—rather than having relentless passion for game development and worth ethic to support it.

Professional behavior is mentioned in nearly every job ad seen in the game industry, and it's what most students expect from their teammates. For example, everyone should take responsibility for his or her own work and deliver the highest quality result possible in the given timeframe. Developers also need to be self-starters, understanding what needs to be done without always being told explicitly. It's also important to be open to learning from other people's work as well as one's own work. And of course, you must work well with other people to survive in the game development industry.

These traits are hard to teach in school, but students who have personalities that are compatible with a career in game development do enjoy certain advantages. For example, being a self-starter, one might become a self-taught Maya animator or Unreal scripter or Photoshop guru. And, because these people have more developed skills, they will probably take on the majority of the more complex tasks in a university team project, leading to even more expertise as the project moves forward.

People without these traits tend not to pursue tasks with as much enthusiasm. They take the quick-and-dirty approach

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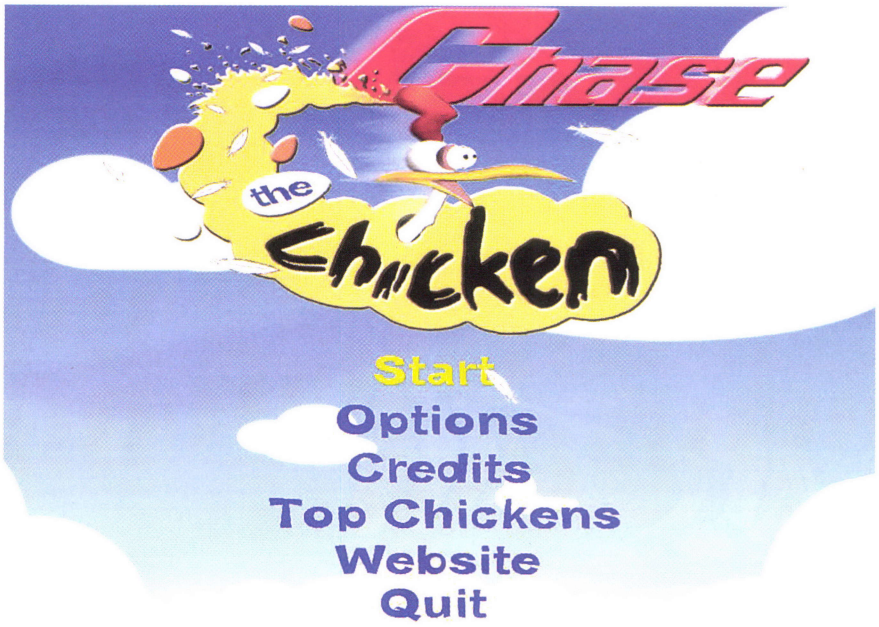
when finishing assignments, not testing their models in the game engine, for example, or overlooking obvious flaws in their work. They are likely to not follow directions or adhere to basic requirement, such as asset scale, file format, and file naming conventions.

4 **FINAL GRADE.** The biggest problem that Team Speed-Force Alpha faced was lack of respect for both deadlines and professionalism. Although not everyone on the team was a repeat offender, a few people held back the group. Additionally, their lack of respect would have been acceptable had it translated into a personal grade for their personal work, but 75 percent of everyone's final grade depended on the final product and documentation—not individual efforts made along the way. Needless to say, the threat of a mediocre grade did not encourage any of the less-than-enthusiastic members to pick up their pace.



At one point in the middle of production, we started to conduct weekly reviews of each team member's performance, which helped to keep the entire team performing in class. We owe a lot to our instructor for consistently enforcing the new, student-inspired evaluation system, which gave us a time and place to address students who were blowing deadlines.

In the long term, it is not grades that matter, but the reputation you develop among your colleagues. People who put in more effort are satisfied knowing that when the time comes to enter the game industry, positive word-of-mouth feedback about them is easy to find.

5 **MISSING DOCUMENTATION ON UNREAL.** We knew we were pushing the limits of UNREAL by creating a huge, un-zoned, terrain map filled entirely with static meshes, and setting ourselves up for problems with three to four people working on the level simultaneously. In theory, filling the map with art and gameplay should be easy as chicken pot pie, but with the added coding and total conversion architecture, a lot of time was spent learning the ways of UNREAL through trial and error.

First, our total conversion architecture was not complete until late in the project, which sometimes caused texture and static mesh packages to corrupt and forced us to redo some work in the level multiple times.

Second, our textures were large and not optimized, making our level load time longer than it needed to be, resulting in slower turnaround time for testing triggers, gameplay features, and cut-scene animations.

Third, some UNREAL features would not work due to code that was changed (for example, character animations in cut-scenes). We had to take a busy programmer off his task to figure out if the problem had anything to do with the code.

Fourth, not everybody was aware that some assets would not transfer between level maps, and on rare occasions, work was lost because of inadequate communication.

Here's what we really needed: basic documentation of technical problems that every mod team is bound to face. Having clear documentation would have sped up our production significantly. While UnrealWiki and http://udn.epicgames.com are the best resources on the web for anything to do with Unreal Technology, some of the info is out of date. Plus, more complex and specialized questions are often found only behind the "paid members only" wall.

Luckily, we met a graduate of our school who knows UNREAL inside out and who was kind enough to consult with us and share his knowledge on numerous occasions.

In retrospect, although we would now be 10 times faster with another UNREAL project, there should be a well-organized and updated wiki to help all total conversion mods get off the ground. Hopefully a public wiki (with a reasonable access cost) will be created when the UNREAL ENGINE 3 technology is released.

CONCLUSION

We hope to enter CHASE THE CHICKEN in the 2007 Independent Games Festival, as well as share it with people in the UNREAL modding community and distribute it on our website. We've had a blast making this game and now that we know what it's like to take a game project from concept to completion, we all feel ready to take on new challenges in game development.

Overall, the eight months of production has been a great learning experience for everybody on the team and has resulted in original IP in an appealing game that we are all proud of. With enough luck, our audience will enjoy playing it, too. That's what we're here for, right? To make great games and interactive experiences, learn a little along the way, and apply it to the next project!

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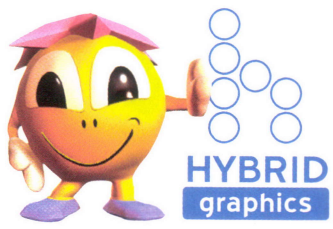

GAME SCHOOL DIRECTORY

ABBREVIATIONS

G	Graduate program
I	International students
N	Non-state residents
R	State residents
U	Undergraduate program
AA	Associate of Arts
AAA	Associate of Applied Arts
AAS	Associate of Applied Science
BA	Bachelor of Arts
BFA	Bachelor of Fine Arts
BS	Bachelor of Science
MA	Master of Arts
MFA	Master of Fine Arts
MS	Master of Science
PhD	Doctor of Philosophy

FUTURE GAME DEVELOPERS HAVE MORE OPTIONS THAN EVER BEFORE IN HOW THEY choose to learn the trade. This directory lists North American academic institutions that offer game development related instruction. Some of these schools fall into the classifications we mentioned in Game 101 (see "Types of Schools," page 33), while others offer certification for specific tools or online classes. If you're interested in studying abroad, there's a short list of international schools on page 84. For complete, updated information regarding any school on this list, please contact that institution directly.

—Brandon Sheffield

NAME	LOCATION	PROGRAMS OFFERED	DEGREES/CERTIFICATION
3D-Online	Los Angeles, CA	Introduction to 3D Graphics Programming, Game Engine Fundamentals, Game Development and 3D for Web and Wireless Devices	Certificate
Academy of Art University	San Francisco, CA	Computer Arts/New Media (Game Design, 3D Modeling, 2D and 3D Animation, New Media, Web Design, Visual Effects)	AA, BFA, MFA, Certificate, Online Programs
Alberta College of Art & Design	Calgary, Alberta	Visual Communications Design Program: Character Design Stream	Bachelor's
Algoma University College	Sault Ste. Marie, Ontario	Computer Science, Computer Games Technology	BS, MA
Art Center College of Design	Pasadena, CA	Digital Media, Entertainment Design	BFA, BS
Art Institute of Atlanta	Atlanta, GA	Game Art & Design, Visual & Game Programming	BFA, BS
Art Institute of California-Inland Empire	San Bernardino, CA	Game Art & Design, Media Arts & Animation, Interactive Media Design	BS
Art Institute of California-Los Angeles	Santa Monica, CA	Game Art & Design	BS
Art Institute of California-Orange County	Santa Ana, CA	Game Art & Design, Media Arts & Animation, Visual & Game Programming	BS
Art Institute of California-San Diego	San Diego, CA	Game Art & Design	AS, BS
Art Institute of California-San Francisco	San Francisco, CA	Game Art & Design, Visual & Game Programming	BFA, BA
Art Institute of Charlotte	Charlotte, NC	Digital Design	Certificate
Art Institute of Colorado	Denver, CO	Media Arts & Animation	BA

DISCLAIMER. All information contained in the *Game Career Guide 2006* game school directory has been provided by school officials and should be verified with the institution, including accreditation. The exclusion or inclusion of any institution in this listing, both domestic and foreign, does not reflect its merits, ranking (official or unofficial), or credibility. Figures pertain to the academic year 2006 or 2005 as updated by officials. All images have been provided courtesy of the institutions listed in this directory.

Michigan State University

Full Sail's game room

TUITION	ACCREDITED	FINANCIAL AID	LENGTH OF PROGRAM	STUDENT/FACULTY RATIO	PHONE	URL	CONTACT
Varies	Yes	No	6-10-week courses	6:1	310.406.1169	www.3d-online.com	contactus@3D-Online.com
$600 per credit (U); $650 per credit (G)	Yes	Yes	4 years (BFA); 2 years (MFA); 3 years (Certificate)	15:1	800.544.2787	www.academyart.edu	info@academyart.edu
$4,493 (Canadian residents); $13,832 (I)	Yes	Yes	4 years	9:1	403.284.7617	www.acad.ab.ca	admissions@acad.ca
$28,000 CDN per year	Affiliate	Yes	4 years	25:1	705.949.2301;	www.auc.ca 888.ALGOMA.U	info@auc.ca
$13,155 per semester	Yes	Yes	8 semesters	Varies	626.396.2373	www.artcenter.edu	admissions@artcenter.edu
$75,840 total tuition for 4 years	Yes	Yes	6-12 quarters	16:1	770.394.8300; 800.275.4242	www.aia.artinstitutes.edu	aiaadm@aii.edu
$19,824 per year	Affiliate	Yes	3 years	20:1	909.915.2100	www.aii.edu/inlandempire	aicaieadm@edmc.edu
$79,446 total tuition for 4 years	Yes	Yes	12 quarters	20:1	888.646.4610; 310.752.4700	www.aicala.artinstitutes.edu	ailaadmin@aii.edu
$403 per credit hour	Yes	Yes	12 quarters	20:1	714.830.0200; 888.549.3055	www.artinstitutes.edu/orangecounty	aicaocadm@aii.edu
$79,446 total tuition for 4 years	Yes	Yes	12 quarters	20:1	858.598.1399; 800.591.2422	www.aicasd.artinstitutes.edu	aisdadm@aii.edu
$6,608 per quarter	Yes	Yes	12 quarters	16:1	415.865.0198; 888.493.3261	www.aicasf.aii.edu	aisfadm@aii.edu
$19,602 for six quarters	Yes	Yes	6 quarters	17:1	704.357.8020	www.aich.artinstitutes.edu	aichadm@aii.edu
$402 per credit hour	Yes	Yes	12 quarters	20:1	303.837.0825	www.artinstitutes.edu/denver	aicadmin@aii.edu

GAME SCHOOL DIRECTORY

NAME	LOCATION	PROGRAMS OFFERED	DEGREES/CERTIFICATION
Art Institute of Dallas	Dallas, TX	Media Arts & Animation	BFA
Art Institute of Fort Lauderdale	Fort Lauderdale, FL	Game Art & Design	BS
Art Institute of Houston	Houston, TX	Media Arts & Animation	BA
Art Institute of Las Vegas	Henderson, NV	Game Art & Design	BS
Art Institutes International Minnesota	Minneapolis, MN	Media Arts & Animation, Interactive Media Design, Visual Effects & Motion Graphics	AS, BS
Art Institute of Philadelphia	Philadelphia, PA	Interactive Media Design	AS, BS
Art Institute of Phoenix	Phoenix, AZ	Game Art & Design, Visual & Game Programming	BA
Art Institute of Pittsburgh	Pittsburgh, PA	Game Art & Design	BS
Art Institute of Portland	Portland, OR	Game Art & Design, Visual & Game Programming	BS, BFA

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Video Games and Interactive Media

A Glimpse at New Digital Entertainment

Stéphane Natkin

The future of interactive media with its worldwide communication potential is just unfolding. Based on intimate knowledge of the history, management, technology, and economics of game development and design, Stéphane Natkin talks about:

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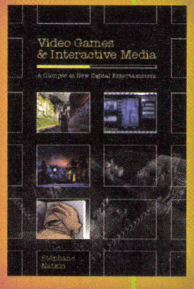
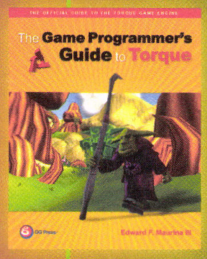
- The design of video games
- Online, proactive, and ubiquitous games
- Cultural implications of video games





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Edward F. Maurina III

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"Torque is a deep and powerful piece of software—Maurina's book is the best guide available for the engine. I am sure it will become standard reading for programmers at our shop."
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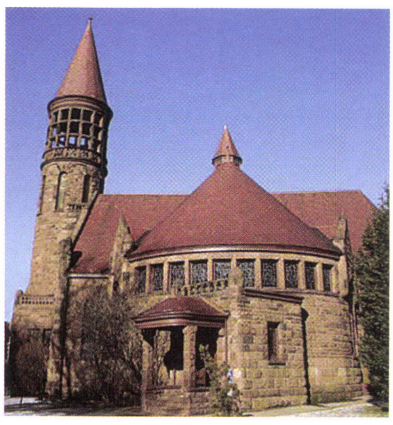
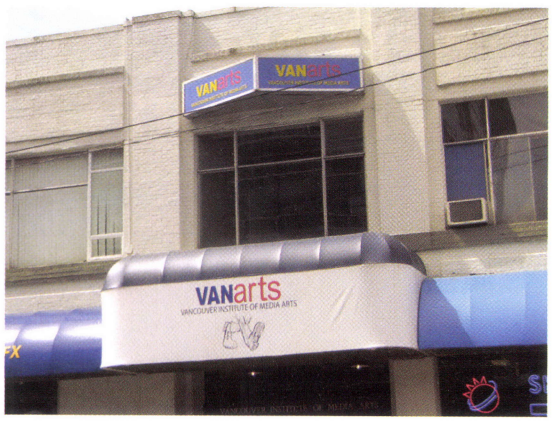
TUITION	ACCREDITED	FINANCIAL AID	LENGTH OF PROGRAM	STUDENT/FACULTY RATIO	PHONE	URL	CONTACT
$403 per credit hour; $6,336 per quarter	Yes	Yes	12 quarters	18:1	214.692.8080	www.aid.edu	steinbachs@aii.edu
$385 per credit hour	Yes	Yes	12 quarters	24:1	954.463.3000; 800.275.7603	www.aifl.artinstitutes.edu	aifladm@aii.edu
$383 per credit hour	Yes	Yes	12 quarters	24:1	713.353.4121	www.aihanimation.com	soverton@aii.edu
$381 per credit hour	Yes	Yes	36 months	20:1	800.833.2678	www.artinstitutes.edu/lasvegas	ailvadm@aii.edu
$42,934 for 7 quarters; $73,494 for 12 quarters	Yes	Yes	12 quarters (Bachelor's); 7 quarters (Associate's)	20:1	612.332.3361; 800.777.3643	www.artinstitutes.edu/minneapolis	aimadm@aii.edu
$49,320 for 8 quarters; $73,980 for 12 quarters	Yes	Yes	8 quarters (AS); 12 quarters (BS)	19:1	800.275.2474	www.aiph.aii.edu	aiphadm@aii.edu
$387 per credit hour	Yes	Yes	3 years	20:1	602.331.7500; 800.474.2479	www.aipx.edu	aipxadm@aii.edu
$72,360 full tuition	Yes	Yes	12 quarters	20:1	412.263.6600; 800.275.2470	www.aip.artinstitutes.edu	aipadm@aii.edu
$71,640 full tuition	Yes	Yes	12 quarters	Varies	888.228.6528	www.aipd.artinstitutes.edu	mschotland@aii.edu

GAME SCHOOL DIRECTORY

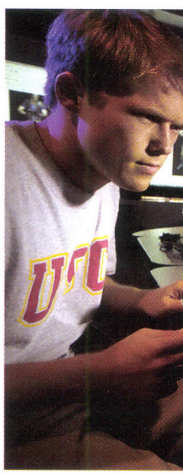
NAME	LOCATION	PROGRAMS OFFERED	DEGREES/CERTIFICATION
Art Institute of Seattle	Seattle, WA	Media Arts & Animation, Animation Art & Design, Interactive Media Design	BFA, AAA
Art Institute of Toronto	Toronto, Ontario	Game Art & Design	Diploma
Art Institute of Vancouver	Burnaby, British Columbia	Game Art & Design, Visual & Game Programming	Diploma
Art Institute of Washington	Arlington, VA	Game Art & Design, Media Arts & Animation, Interactive Media Design	AA, BFA
Art Institute Online	Pittsburgh, PA	Game Art & Design	AS, BS, Diploma
Austin Community College	Austin, TX	Game Development with specialization in Programming, Art, Design or Production	Certificate
Bloomfield College	Bloomfield, NJ	Game Development, Animation, Graphics, Music Technology	BA, Certificate
Brown University	Providence, RI	Computer Science	MS, PhD
California Institute of the Arts	Valencia, CA	Character Animation, Experimental Animation	BFA, MFA
California Polytechnic State University	San Luis Obispo, CA	Computer Science, Computer Engineering, Art & Design, Graphic Communication, Music	Bachelor's, Master's
California State University-Fullerton	Fullerton, CA	Entertainment Art/Animation	BFA
California State University-Long Beach (Extension Services)	Long Beach, CA	3DS Max Online	Certificate
Carnegie Mellon University Entertainment Technology Center	Pittsburgh, PA	Game Design, Entertainment Technology	MA
CATO (Center for Arts & Technology in Okanagan)	Kelowna, British Columbia	Mobile Game Developer, 3D Game animation	Diploma
Centennial College, The Centre for Creative Communications	Toronto, Ontario	Game Design & Development	Diploma



Bloomfield College's Westminster Hall



The Vancouver Institute of Media Arts



TUITION	ACCREDITED	FINANCIAL AID	LENGTH OF PROGRAM	STUDENT/FACULTY RATIO	PHONE	URL	CONTACT
$400 per credit hour	Yes	Yes	8 quarters (AAA); 12 quarters (BFA)	19:1	800.275.2471	www.artinstitutes.edu/seattle	aisadm@aii.edu
$31,770 per year	Yes	Yes	18 months	20:1	866.202.0481	www.aito.aii.edu	aitoadm@aii.edu
$24,975-$36,900 per year	Yes	No	18 months	20:1	604.298.5400; 800.661.1885	www.aiv.aii.edu	aivbinfo@aii.edu
$325 per credit hour	Yes	Yes	18 months (AA); 36 months (BFA)	20:1	877.303.3771	www.aiw.aii.edu	adm@aii.edu
$392 per credit hour, $100 online lab fee per course	Yes	Yes	180 credits	N/A	877.872.8869	www.aionline.edu	aioadm@aii.edu
$7,500	Yes	Yes	2 years	8:1	512.223.7662	www.austincc.edu/techcert/Video_Games	rmcgoldr@austincc.edu
$15,000	Yes	Yes	4 years	15:1	800.848.4555	http://www.bloomfield.edu/cat/gamedev.asp	thomas_toynton@bloomfield.edu
$30,672 per year	Yes	Yes	Varies	Varies	401.863.7600	www.cs.brown.edu	gradinfo@cs.brown.edu
$29,300 per year	Yes	Yes	4 years (BFA); 3 years (MFA)	7:1	661.255.1050	www.calarts.edu	admiss@calarts.edu
$226 per quarter unit, $3,972 university fees (N)	Yes	Yes	4 years (U); 2 years (G)	19:1	805.756.2311	www.calpoly.edu	admissions@calpoly.edu
$1,495 per semester (R); $6,580 per semester (N)	Yes	Yes	4-5 years	24:1	714.278.3471	www.art.fullerton.edu	kbell@fullerton.edu
$1,295	Affiliate	No	40 hours	Varies	800.963.2250	www.uces.csulb.edu	info@uces.csulb.edu
$15,000 per semester	Yes	No	2 years	10:1	412.268.5791	www.etc.cmu.edu	tbowers@andrew.cmu.edu
Approx. $7,000 CDN	No	Yes	51 weeks	12:1	250.860.2787	www.digitalartschool.com	gmorris@digialartschool.com
$11,900 CDN (Canadian residents); $21,875 CDN (I)	Yes	No	2 years	15:1	416.289.5000 x8637	www.bccc.com	knoble@centennialcollege.ca

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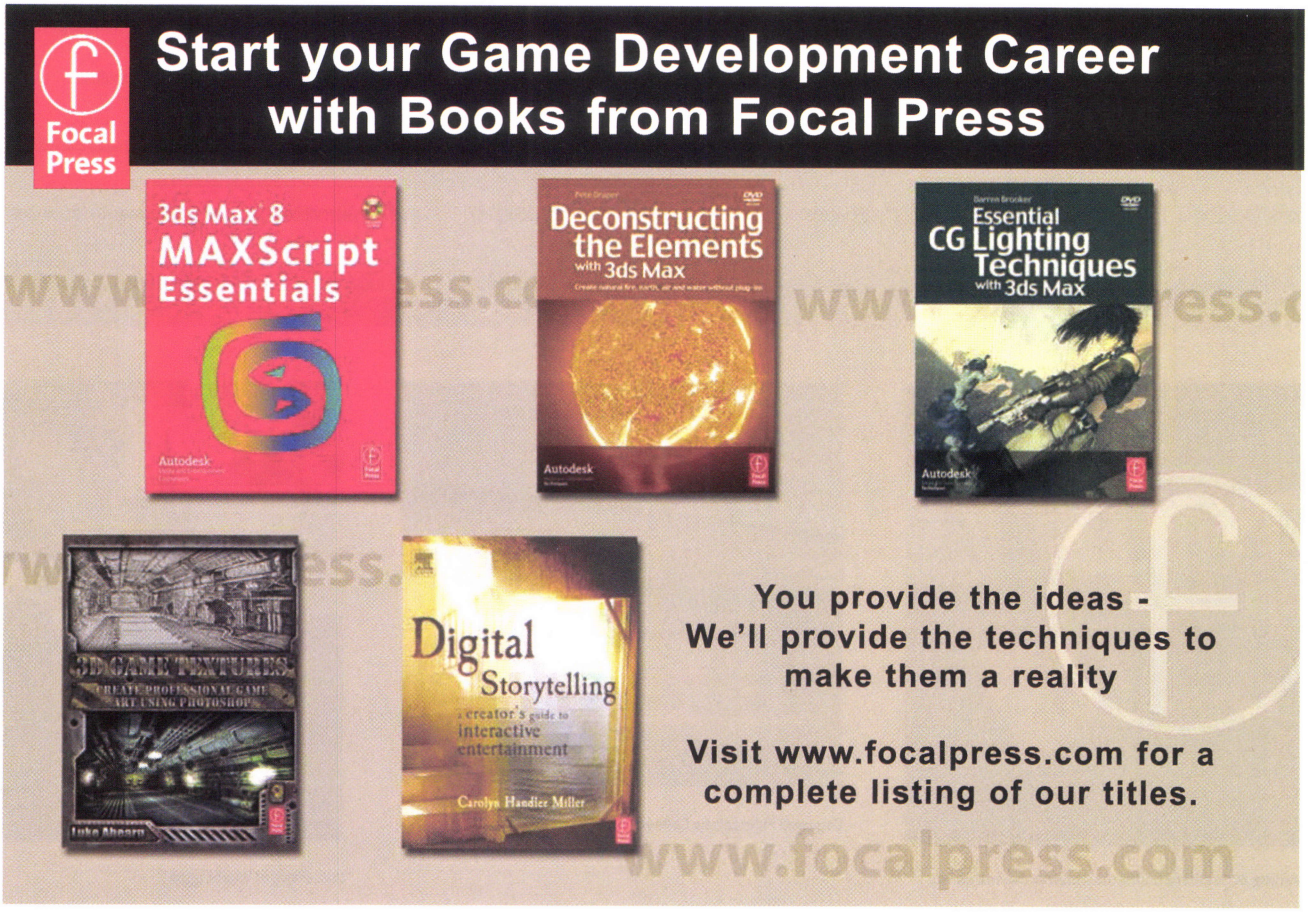
Cogswell Polytechnic College

University of Washington

GAME SCHOOL DIRECTORY

NAME	LOCATION	PROGRAMS OFFERED	DEGREES/CERTIFICATION
Center for Arts & Technology Atlantic	Fredericton, New Brunswick	Animation Visual Effects Artist Foundation/Production, Virtual Environment Interactive Design, Recording Arts, Mobile Game Developer	Certificate, Diploma
Center for Digital Imaging Arts at Boston University	Waltham, MA	3D Animation, Visual Effects, Game Art & Design	Certificate
Center for Electronic Communication at Florida Atlantic University	Ft. Lauderdale, FL	Computer Arts in Animation, Computer Arts	BFA, MFA
Cerro Coso College Academy of Digital Animation	Ridgecrest, CA	Digital Animation	AS, Certificate
Champlain College	Burlington, VT	Electronic Game Programming, Electronic Game & Interactive Development, specialization in Game Design or Art & Animation	BS, BA
Cogswell Polytechnical College	Sunnyvale, CA	Game Design, Animation, Modeling, Entertainment Design, Digital Audio Technology, Digital Arts Engineering, Software Engineering	BA, BS
Collins College	Tempe, AZ	Game Design, Animation	BA
Community College of Baltimore County	Baltimore, MD	Simulation & Digital Entertainment	Associate's
DePaul University's School of CTI	Chicago, IL	Computer Graphics & Animation	BS, MS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TUITION	ACCREDITED	FINANCIAL AID	LENGTH OF PROGRAM	STUDENT/FACULTY RATIO	PHONE	URL	CONTACT
$24,960 per year	No	Yes	9-24 months	24:1	506.460.1280	www.digitalartsschool.com	cara@digitalartsschool.com
$19,630	Yes	No	9 months	12:1	506.460.1280	www.cdiabu.com	info@cdiabu.com
per credit hour: $109 (R, U); $546 (N, U); $244 (R, G); $913 (N, G)	Yes	Yes	4 years (BFA); 2 years (MFA); 3 years (MFA/Distance Ed.)	8:1	954.762.5618	www.animasters.com	newmand@laureate.cec.fau.edu
$54 per course (R), $501 per course (N)	Yes	Yes	1 year	8:1	760.384.6317	www.coyote3d.com	jkiggens@cerrocoso.edu
$16,250 off-campus; $26,655 on-campus	Yes	Yes	4 years	15:1	802.860.2727; 800.570.5858	www.champlain.edu	admissions@champlain.edu
$14,984	Yes	Yes	4 years	12:1	800.264.7955	www.cogswell.edu	vbrown@cogswell.edu
$6,200 per term	Yes	Yes	31 months	30:1	800.876.7070	www.collinscollege.edu	info@collinscollege.edu
$87 per credit hour (R)	Yes	Yes	2 years, with matriculation for BA at Boston Univ.	20:1	410.455.4598	www.ccbcmd.edu/sait; http://iat.ubalt.edu	hrummel@ccbcmd.edu; smoulthrop@ubalt.edu
$348 per credit hour (U); $535 per credit hour (G)	Yes	Yes	4 years (U)	10:1	312.362.8381	www.depaul.edu	cti@cs.depaul.edu

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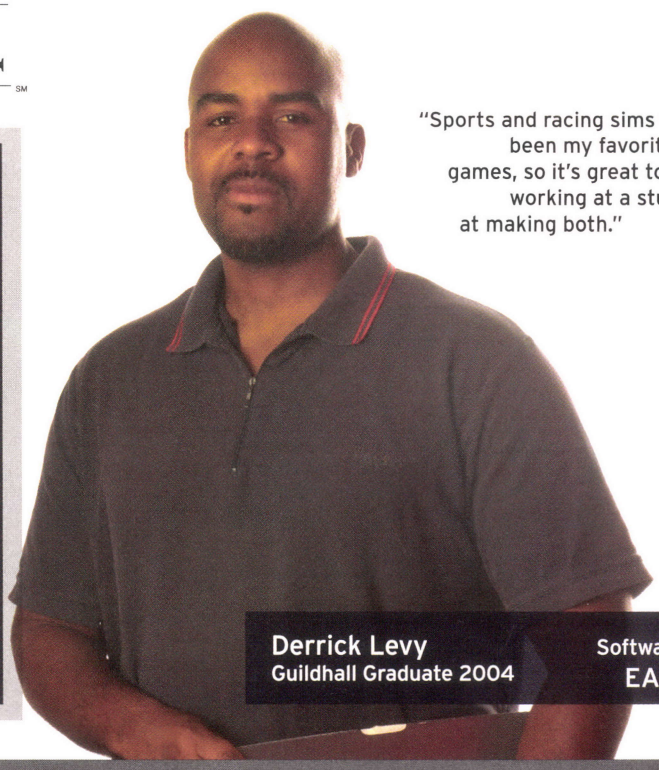

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Guildhall Graduate 2004

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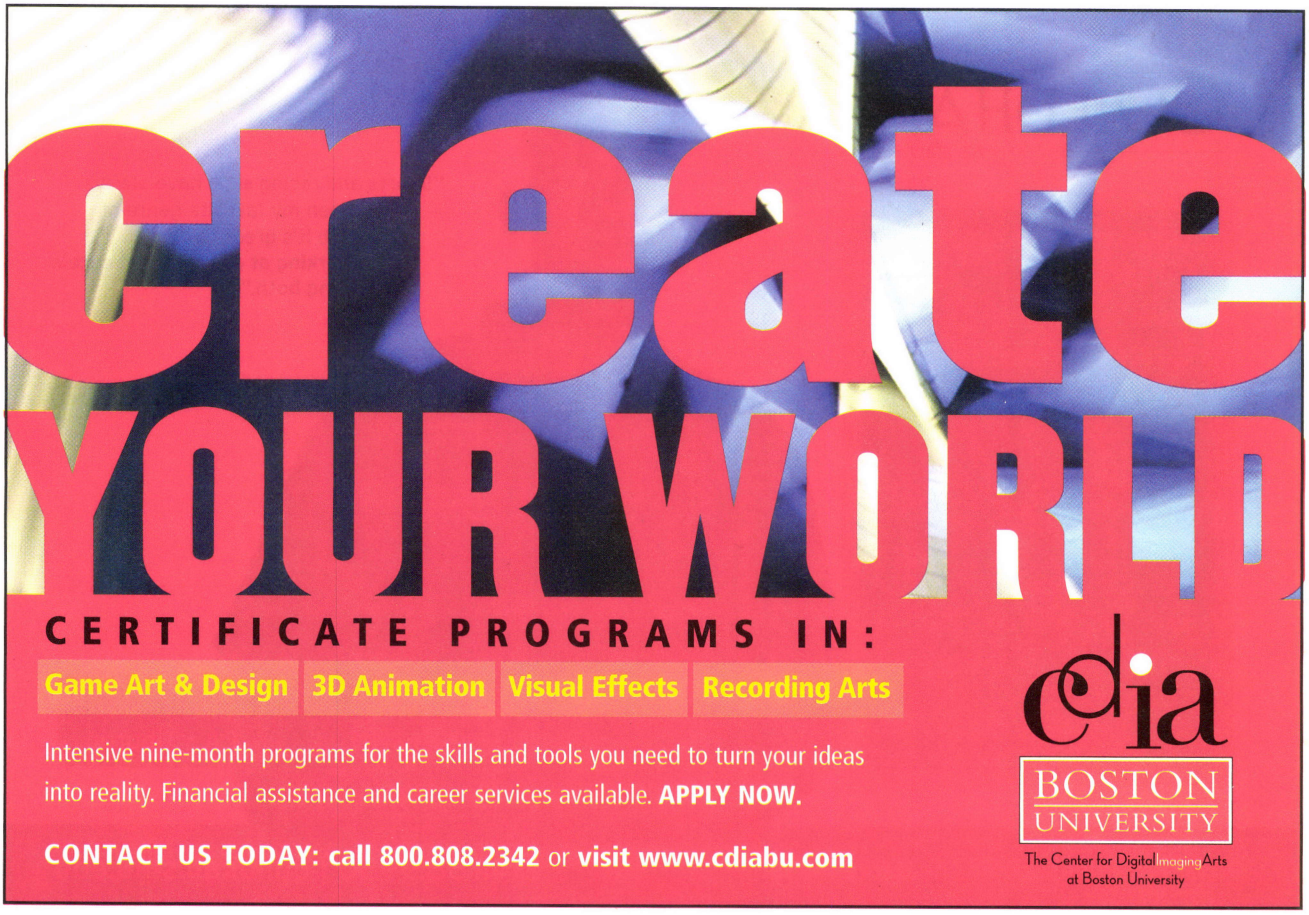
GAME SCHOOL DIRECTORY

NAME	LOCATION	PROGRAMS OFFERED	DEGREES/CERTIFICATION
DeVry University	Phoenix, AZ	Game and Simulation Programming	BS
DeVry University	Long Beach; Pomona; West Hills, CA	Game and Simulation Programming	BS
DeVry University	Fremont, CA	Game and Simulation Programming	BS
DeVry University	Decatur; Alpharetta, GA	Game and Simulation Programming	BS
DeVry University	Irvington, TX	Game and Simulation Programming	BS
DigiPen Institute of Technology	Redmond, WA	Real-Time Interactive Simulation, ComputerEngineering, Computer Science, 3D Computer Animation, Production Animation	Associate's, Bachelor's, and Master's
Grande Prairie Regional College	Grande Prairie, Alberta	Visual Arts, Interactive Digital Design, Computer Systems Technology, Computing & Information Systems	Diploma, BS
Drexel University, College of Media Arts & Design	Philadelphia, PA	Digital Media, Film & Video, Graphic Design, Photography, Screenwriting & Playwriting	BS
Edmonds Community College	Lynnwood, WA	Game Development	AA, AS, Certificate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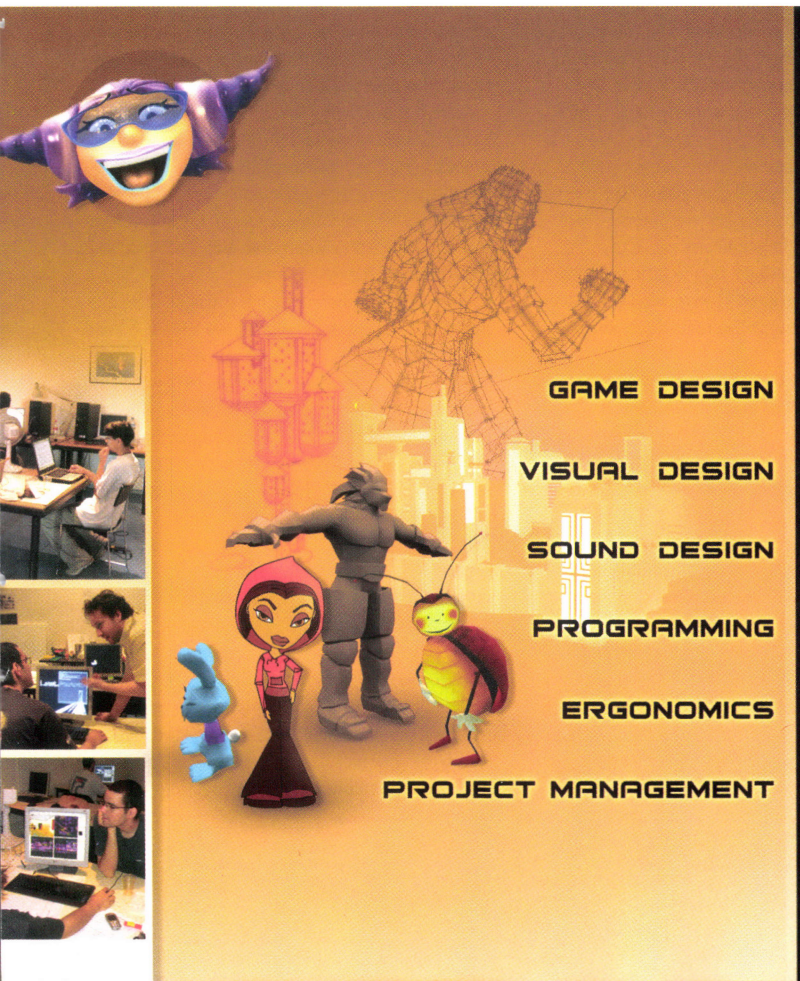
TUITION	ACCREDITED	FINANCIAL AID	LENGTH OF PROGRAM	STUDENT/FACULTY RATIO	PHONE	URL	CONTACT
$465 per credit hour	Yes	Yes	8 terms	25:1	602.870.9201	www.devry.edu/PRinfo	inquiries@devry.com
$485 per credit hour	Yes	Yes	8 terms	25:1	888.201.9941	www.devry.edu/Prinfo	inquiries@devry.com
$500 per credit hour	Yes	Yes	8 terms	25:1	888.201.9941	www.devry.edu/Prinfo	inquiries@devry.com
$465 per credit hour	Yes	Yes	8 terms	25:1	404.292.2645; 770.664.9520	www.devry.edu/Prinfo	inquiries@devry.com
$465 per credit hour	Yes	Yes	8 terms	25:1	630.571.7700	www.devry.edu/Prinfo	inquiries@devry.com
$380 (U); $495 (U, I); $500 (G); $650 (G, I) per credit	Yes	Yes	1-4 years	16:1	425.558.0299	www.digipen.edu	info@digipen.edu
$270 per 3-credit course	Yes	Yes	2 years (diploma program); 120 credits (BS)	10:1	780.539.2911	www.gprc.ab.ca	finearts@gprc.ab.ca; cmss@gprc.ab.ca
$28,300 (full tuition)	Yes	Yes	4 years	15:1	215.895.1675; 215.895.1834	www.drexel.edu/comad	ddm22@drexel.edu; tjm22@drexel.edu
$900 per quarter	Yes	Yes	1-2 years	15:1	425.640.1902	www.edcc.edu	gamedev@edcc.edu



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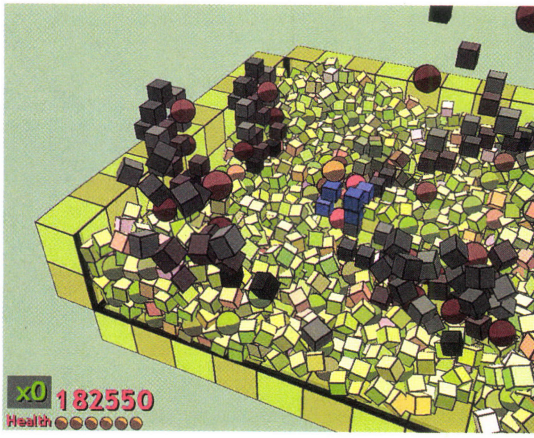

INTERNSHIPS: YOUR TICKET TO THE INDUSTRY

ODDS ARE IF YOU'RE READING THIS MAGAZINE, you want a job in the game industry. And while the industry wants you too, the relationship is not unconditional. Most employers will only hire those with related work experience, which is a difficult (and timeless) catch-22 that many solve by volunteering their work for little to no pay—in other words, by taking an internship.

Internships, in addition to providing real-world, hands-on experience in game development, are an invaluable tool for establishing and building the business relationships that will remain absolutely essential for the remainder of your career. In an industry as incestuous as ours, it's practically inevitable that your co-workers of today will be the gateway to a new position tomorrow, either directly or simply through word-of-mouth. An intern with good work ethics, talent, and enthusiasm has a lasting effect on his or her co-workers, and to future employers, a good recommendation can sometimes be more important than a strong portfolio.

For students interested in internships, we recommend starting the hunt as early as possible, as the market is competitive and tough as nails. Juniors, seniors, and recent graduates are typically eligible to apply. There simply is nothing more beneficial to a student than hands-on experience; not only in terms of knowledge, but in building a killer portfolio, too.

Many developers, from the smallest start-ups to Electronic Arts, offer internship positions in a variety of fields. Given the option, we recommend interning for a variety of companies. Not only will this allow you to establish yourself with a wide variety of potential co-workers, it will also give you the rare opportunity to get a feel for which type of company you're best suited for. Not everyone is comfortable, for instance, working for a major corporation, which is a lesson best learned early on. And beyond these benefits, interning for a variety of companies will give you valuable insight into what employers look for in a potential hire. These lessons will help you craft your resume, cover letter, and portfolio. By the time school's out and you're ready to enter the workforce, you'll be armed to the teeth with the tools necessary for finding a good job.

What follows is a basic outline of the internship policies at a few game studios. Remember, opportunities are everywhere. This is by no means a definitive list.

INTERNSHIP OPPORTUNITIES

Electronic Arts. EA has what is probably the most wide-ranging and well-known internship opportunities at EA Academy. Positions are posted online as early as January, and cover the fields of software engineers, artists, production, and marketing/public relations. Applications are reviewed between February and April, interviews are conducted between March and April, and the hiring process begins in May. Look for openings at **http://eaacademy.ea.com**.

Sony Computer Entertainment. Though not known as a major source of internships, Sony's PlayStation unit offers an occasional position, right alongside their employment openings. See **www.us.playstation.com/Corporate/Jobs**.

Microsoft Game Studios. Though searching specifically for a game development internship online is impossible, Microsoft does offer a number of them through its blanket corporate internship program. Resumes can be submitted through Microsoft's internship web site, located at **www.microsoft.com/college**.

Nintendo. Nintendo does not officially offer an internship program. Believe us, we called! There's nothing saying that won't change, however.

Midway. Much like Sony, Midway lists internship positions online, right alongside their big brother full-time jobs at **http://jobs.midway.com**.

Vivendi Universal Games. Vivendi launched a full-scale summer internship program in 2004, offering full-time internship with compensation at its Los Angeles office in nearly all areas of game production, including accounting, art, communications, finance, human resources, information technology, legal, marketing, production, programming, and sales. Unfortunately, its internship web site has not been updated since 2005, and the company has not returned our phone call inquiries. The URL, if you'd like to try your luck, is **www.vugames.com/careersdb.jsp.**

—Frank Cifaldi

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GAME SCHOOL DIRECTORY

NAME	LOCATION	PROGRAMS OFFERED	DEGREES/CERTIFICATION
Ex'pression College for Digital Arts	Emeryville, CA	Animation and Visual Effects	Bachelor's
Florida Interactive Entertainment Academy	Orlando, FL	3-D Modeling, Animation, Technical Artistry, Software Development, Production Management	Certificate, MS
Full Sail Real World Education	Winter Park, FL	Game Development, Computer Animation	BS
Game Institute, Inc.	New York, NY	Game engine, 3D graphics development	Certificate, can be applied toward AS and BS through Excelsior College
Gemini School of Visual Arts and Communication	Cedar Park, TX	Commercial Art & Illustration	Diploma
Georgia Institute of Technology	Atlanta, GA	Graphics & Visualization, Artificial Intelligence	BS, MS, PhD
Georgia State University	Atlanta, GA	Computer Science, Artificial Intelligence	BS, MS, PhD
Gnomon School of Visual Effects	Hollywood, CA	3D Computer Graphics & Animation, Concept/Production Design	Certificate, Diploma
Guildhall at Southern Methodist University	Plano, TX	Art Creation, Level Design, and Software Development	Certificate, Master's

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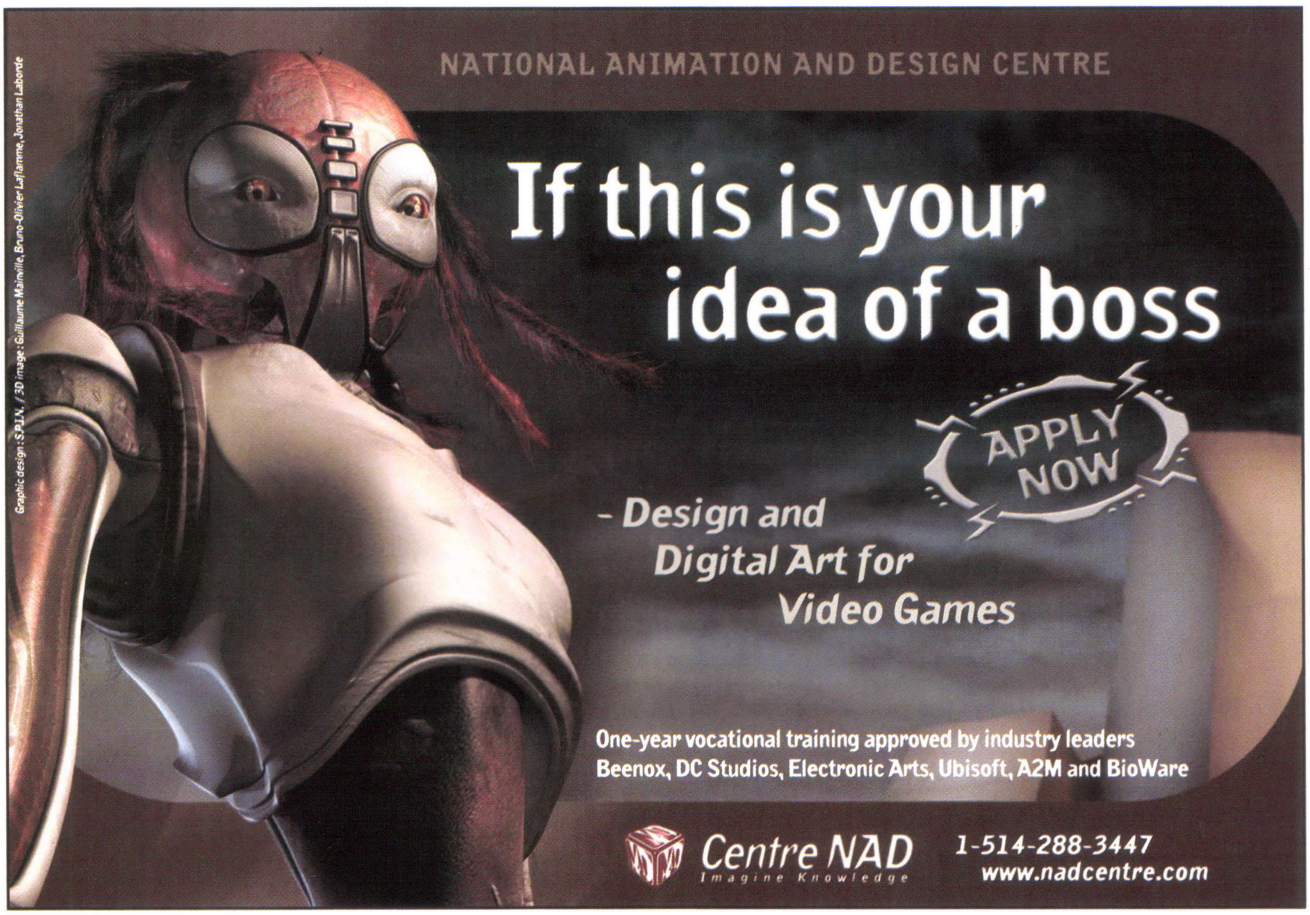
TUITION	ACCREDITED	FINANCIAL AID	LENGTH OF PROGRAM	STUDENT/FACULTY RATIO	PHONE	URL	CONTACT
$68,500 (includes books and materials); $62,500 with transfer of GE credits	Yes	Yes	31 months	18:1	877.833.8800	www.expression.edu	brittany@expression.edu
$29,500 (full tuition)	Yes	Yes	16 months	4:1	407.823.2121	www.fiea.ucf.edu	admission@fiea.ucf.edu
$64,775 (full degree program cost, including books & supplies)	Yes	Yes	21 months	9:1	800.226.7625	www.fullsail.com	admissions@fullsail.com
$200 per course	Yes	Yes	7 semesters	15:1	N/A	www.gameinstitute.com	information@gameinstitute.com
$56,000	No	No	4 years	24:1	512.249.1237	www.geminischool.com	cynthia@geminischool.com
$11,475 per year (N)	Yes	Yes	4 years	11:1	404.894.3152	www.gatech.edu	admissions@success.gatech.edu
$8,478 per year (N)	Yes	Yes	4 years	15:1	404.651.2365	www.gsu.edu	admissions@gsu.edu
$43,000 (certificate program), extension courses vary	Yes	No	21 months (certificate); 9 months (diploma)	12:1	323.466.6663	www.gnomon3d.com	info@gnomon3d.com
$45,000 (G); $40,500 (Certificate)	Yes	Yes	21 months	10:1	214.768.9950	http://guildhall.smu.edu	rarchamb@smu.edu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NAME	LOCATION	PROGRAMS OFFERED	DEGREES/CERTIFICATION
Illinois Institute of Art, Chicago	Chicago, IL	Game Art & Design, Media Arts & Animation, Digital Media Production, Visual Effects & Motion Graphics	BFA
Illinois Institute of Art, Schaumburg	Schaumburg, IL	Game Art & Design	BFA
Indiana University-MIME Program	Bloomington, IN	Master's in Immersive Mediated Environments (MIME)	Master's
Marist College	Poughkeepsie, NY	Computer and Video Game Developer Certificate program	Certificate, Bachelor's, Master's
Massachusetts Institute of Technology	Cambridge, MA	MIT Comparative Media Studies	SB, SM
McMaster University	Hamilton, Ontario	Software Engineering & Game Design	Bachelor's
Mercy College, Center for Digital Arts	White Plains, NY	Game Design, Digital Media and Interaction Design, Animation	BFA
Mesmer Animation Labs	Seattle, WA	Maya, Softimage XSI	Certificate
Michigan State University	East Lansing, MI	Game Design and Development, Digital Media Art & Technology	BA, BS, BFA, MA

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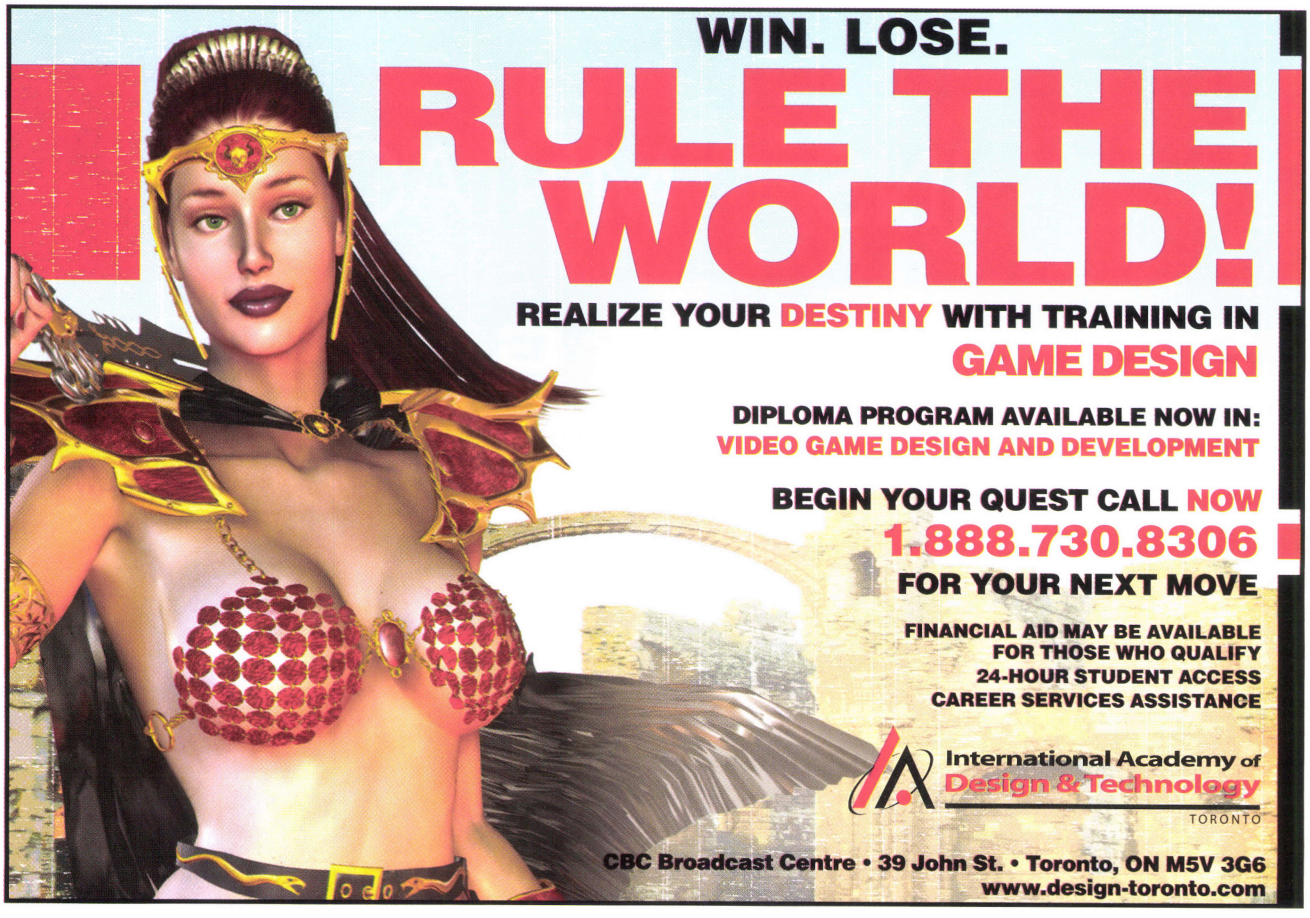
TUITION	ACCREDITED	FINANCIAL AID	LENGTH OF PROGRAM	STUDENT/FACULTY RATIO	PHONE	URL	CONTACT
$380 per credit hour; $22,800 per year	Yes	Yes	12 quarters	15:1	312.280.3500; 800.351.3450	www.ilic.aii.edu	hernanle@aii.edu
$24,000 per year	Yes	Yes	3 years	19:1	800.314.3450	www.artinstitutes.edu/schaumburg	rmckinney@aii.edu
$142.75-$572.85 per credit hour	Yes	Yes	4 years	19:1	812.855.3254	www.mime.indiana.edu	inadmit@indiana.edu
$445 per credit hour (U); $562 per credit hour (G)	yes	yes	16-34 weeks	Varies	845.575.3800	www.marist.edu/gce/gaming	continuing.ed@marist.edu
$30,800 per year	Yes	Yes	4 years (U); 2 years (G)	5:1	617.253.3599	http://web.mit.edu/cms	cms@mit.edu
$6,735 CDN (Canadian residents); $18,749 CDN (I)	Yes	N/A	4 years	25:1	905.525.9140 x24614	http://gamer.mcmaster.ca	gamer@mcmaster.ca
$5,896 per semester, $496 per credit	Yes	Yes	4 years	10:1	914.948.3666 x3311	www.mercy.edu/cda	computerarts@mercy.edu
$8,950 per 11-week program; $7,535 student rate	No	Yes	11 weeks	6:1	800.237.7311	www.mesmer.com	info@mesmer.com
U: $15,144 (R); $25,934 (N); $27,042 (I) G: $17,814 (R); $23,720 (N); $23,672 (I)	Yes	Yes	4 years (U); 2 years (G)	20:1	517.355.8372	http://dmat.msu.edu/games.html	rachel@msu.edu

GAME SCHOOL DIRECTORY

NAME	LOCATION	PROGRAMS OFFERED	DEGREES/CERTIFICATION
Northern Oklahoma College	Tonkawa, OK	3D Animation and Post-production	AAS
National Animation and Design Centre (NAD Centre)	Montreal, Quebec	Design and 3D Animation for Videogames	Diploma
New Media Campus	Saskatoon; Regina, Saskatchewan	Multimedia Professional Studies, 3D Animation & Game Design	Diploma
New York University, The Center for Design, Digital Arts, and Film	New York, NY	Big Games, Game Design, Ubiquitous Computing For Mobile Devices, Interaction Design, 3D Animation, Physical Computing	MPS
North Carolina State University, College of Design	Raleigh, NC	3D Animation, Game Design, Interactive Design, Multimedia & Digital Imaging, Ideation & Illustration	BFA, MFA
Northwestern University	Evanston, IL	Multimedia & Digital Imaging, Video Editing/Development, Ideation & Illustration	MS, PhD
Otis College of Art and Design Digital Media Department	Los Angeles, CA	game design, animation, interactive design, motion graphics, visual effects	BFA
Palomar College	San Marcos, CA	Video Game Specialist Certificate (programming); Video Game Artist Certificate	AA, Certificate
Parsons School of Design, Design & Technology Department	New York, NY	Game Design & Technology	BFA, MFA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$7,440 for 2 year session	Yes	Yes	2 years	5:1	580.628.6458	www.north-ok.edu/dmi	bmatson@north-ok.edu
$16,500 CDN (Canadian residents); $21,500 CDN (I)	No	Yes	48 weeks; 12-16 week full-time internship	20:1	514.288.3447	www.nadcentre.com	info@nadcentre.com
$13,000 per program plus $75 application fee	Yes	Yes	9-10 months	20:1	866.755.5551; 866.630.0000	www.newmediacampus.com	tara@newmediacampus.com (sk); jon@newmediacampus.com(reg)
$34,000	Yes	Yes	2 years	5:1	212.998.1882	http://itp.nyu.edu	midori.yasuda@nyu.edu
$14,454 (U, R); $27,152 (U, N); $20,390 (G, R); $32,438 (G, N)	Yes	Yes	3-4 years	18:1	919.515.3876	www.ncsudesign.org	susan_brandeis@ncsu.edu
$10,548 per quarter, full-time	Yes	Yes	2-4 years	7:1	847.491.3500	www.northwestern.edu	c-riesbeck@northwestern.edu
$27,600 per year	Yes	Yes	4 years	10:1	310.665.6800	www.otis.edu	digital@otis.edu
$26 per unit (R); $157 per unit (N); $157 per unit (I)	Yes	Yes	1 year	23:1	760.744.1150 x5410	www.palomar.edu;	palomarInfo@edmagnin.com
$28,000 per year	Yes	Yes	2-4 years	15:1	212.229.8908	http://dt.parsons.edu	dt@parsons.edu

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GAME SCHOOL DIRECTORY

NAME	LOCATION	PROGRAMS OFFERED	DEGREES/CERTIFICATION
Platt College, San Diego School of Design	San Diego, CA	3D Animation, Special FX, Game Art & Design	AAS, BS, Diploma
Pratt Institute	Brooklyn; Manhattan, NY	Computer Graphics & Interactive Media, Digital Design & Interactive Media	BFA, MFA
Purdue University and Technical Animation	West Lafayette, IN	Computer Graphics Technology, Concentrations in Interactive Multimedia	AS, BS
Ringling School of Art and Design	Sarasota, FL	Computer Animation, Fine Arts, Graphic & Interactive Communication, Illustration, Photography, Digital Imaging	BFA
Rochester Institute of Technology	Rochester, NY	Digital Studio, Information Technology, Computer Science	BFA, MS, MFA, Certificate
San Francisco State University	San Francisco, CA	Introduction to Computer Science via Game Design	BS, MS
Santa Monica College, Design Technology dept.	Santa Monica, CA	Animation, Game Development, Post Production, Visual Effects	AA, Certificate
Savannah College of Art and Design	Savannah, GA	Animation, Interactive Game Design & Motion Graphics, Sound Design, Visual Effects	BFA, MA, MFA, Certificate
School of Communication Arts	Raleigh, NC	Digital Media, Digital Animation, Digital Filmmaking & Digital Audio	Certificate
School of Visual Arts	New York, NY	Computer Art, Animation	BFA
Seattle Central Community College	Seattle, WA	Game Design	Certificate
Seneca College of Applied Art and Technology, Animation Arts Centre	Toronto, Ontario	Video Game Art & Design	Certificate
Shawnee State University	Portsmouth, OH	Game Graphics, Game Programming	BFA, BS
Sierra Nevada College	Incline Village, NV	Entertainment Technology, Digital Art, Computer Science	BA, BFA, BS
Success College of Applied Arts & Technology	Moncton, New Brunswick	Digital Graphic Design, Interactive Entertainment Technology	Diploma

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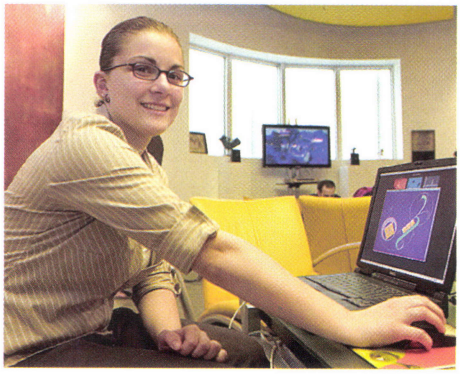

A Savanah College of Art and Design student at work

TUITION	ACCREDITED	FINANCIAL AID	LENGTH OF PROGRAM	STUDENT/FACULTY RATIO	PHONE	URL	CONTACT
$23,600 per year	Yes	Yes	2.5 years (BS); 15 months (AAS)	15:1	866.752.8826	www.platt.edu	info@platt.edu
$26,500 (U); $17,100 (G)	Yes	Yes	4 years (BFA); 2 years (MFA)	6:1	718.636.3514;	www.pratt.edu 800.331.0834	rick@pratt.edu
$14,400 per year (R), $24,770 per year (N), incl. fees	Yes	Yes	4 years	16:1	765.494.7505	www.tech.purdue.edu/cg	cgtinfo@purdue.edu
$10,600 per semester	Yes	Yes	4 years	16:1	941.351.5100	www.ringling.edu	admissions@ringling.edu
$24,000 (U); $27,000 (G)	Yes	Yes	2 years	13:1	585.475.2754	www.rit.edu/cgd	mkspph@rit.edu
$5,000 per year	Yes	Yes	4 years	25:1	415.338.2539	http://cs.sfsu.edu	kroll@sfsu.edu
$26 per unit (R); $149-$171 (N, I)	Yes	Yes	2 years	18:1	310.434.3700	http://academy.smc.edu	academy_info@smc.edu
$22,950 (U); $23,400 (G)	Yes	Yes	4 years	20:1	800.869.7223	www.scad.edu	admission@scad.edu
$280-$369 per credit	Yes	Yes	2 years	6:1	919.488.8500; 800.288.7442	www.higherdigital.com	school@higherdigital.com
$11,200 per semester	Yes	Yes	4 years	9:1	212.592.2100, 800.436.4204	www.schoolofvisualarts.edu	admissions@sva.edu
$395 per course	Yes	No	2 quarters	6:1	206.587.5448	www.learnatcentral.org	jewest@sccd.ctc.edu
$8,510 (Canadian residents); $12,386 (I)	Yes	Yes	8 months	15: 2	416.491.5050 x3850	http://aac.senecac.on.ca	aac@senecac.on.ca
$4,734 per year	Yes	Yes	4 years	18:1	740.351.3159; 800.959.2778	www.shawnee.edu	ToSSU@shawnee.edu
$20,573 per year	Yes	Yes	4 years	9:1	775.831.1314 x4046	www.sierranevada.edu	admission@sierranevada.edu; dart@sierranevada.edu
$5,950 CDN per year	Yes	Yes	2 years	25:1	506.855.8555	www.thinksuccess.ca	moncton@thinksuccess.ca

Rochester Institute of Technology

Vancouver Film School

Game narrative designer Mary DeMarle (MYST 3 & 4), fields questions from Champlain College students

GAME SCHOOL DIRECTORY

NAME	LOCATION	PROGRAMS OFFERED	DEGREES/CERTIFICATION
University of Advancing Technology	Tempe, AZ	Game Design, Multimedia & Game Programming, Software Engineering	Associate's, Bachelor's, Master's
University of Baltimore	Baltimore, MD	Simulation & Digital Entertainment; Interaction Design & Information Architecture	Bachelor's, Master's
University of Calgary, Department of Computer Science	Calgary, Alberta	Computer Science with a Concentration in Game Design	BA, BS, MS, PhD
University of California-Irvine	Irvine, CA	Specialization in Game Culture and Technology, Computer Engineering, Information and Computer Science, Digital Arts	BA
University of California-Los Angeles (Extension)	Los Angeles, CA	Computer Graphics & Graphic Design	Certificate
University of California-Santa Cruz	Santa Cruz, CA	Computer Game Depth Sequence within Computer Science, Computer Game Design	BA, BS
University of Maryland-Baltimore County (Computer Certification Training Center)	Baltimore, MD	Computer Game Development Fundamentals/Effects & Animation	Non-degree training program
University of Michigan (EECS Department)	Ann Arbor, MI	Computer Science, Computer Engineering	Bachelor's, Master's, PhD
University of Missouri-Columbia (College of Engineering)	Columbia, MO	Computer Science-Information Technology	BS, MS, PhD

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TUITION	ACCREDITED	FINANCIAL AID	LENGTH OF PROGRAM	STUDENT/FACULTY RATIO	PHONE	URL	CONTACT
$349 per credit hour	Yes	Yes	60 credit hours (Associate's); 120 credit hours (Bachelor's)	15:1	602.383.8228; 800.658.5744	www.uat.edu	admissions@uat.edu
$7,074 (U); $10,004 (G)	Yes	Yes	4 years	20:1	410.837.5473	http://iat.ubalt.edu/sde	sde@ubalt.edu
$2,350 per semester	Yes	Yes	Min. 4 years	15:01	403.220.6015	www.cs.ucalgary.ca	discover@cpsc.ucalgary.ca
$7,475 (U, R); $25,295 (U, N); $9,395 (G, R); $24,356 (G, N)	Yes	Yes	2-4 years	20:1	949.824.6703	http://ucgamelab.net	via web site
$475-$855 per course	Yes	Yes	2 years	15:1	310.206.1422	www.uclaextension.edu/visualarts	visualarts@uclaextension.org
$7,603 (R); $17,304 (N)	Yes	Yes	4 years	17:1	831.459.5840	www.soe.ucsc.edu/	advising@soe.ucsc.edu
$2,495; $1,295	Affiliate	Yes	84 hours (fundamentals); 42 hours (advanced)	10:1-19:1	410.594.2282	www.umbc.edu/trainctr	info@umbccctc.com
$9,244 (R); $27,856 (N)	Yes	Yes	4 years	15:1	734.764.2390	www.eecs.umich.edu	ugadmiss@umich.edu
$6,042 (G, R); $8,330 (G, N)	Yes	Yes	4 Years (BS), 2 years (MS)	13:1	573.882.6666	www.engineering.missouri.edu	gradsec@cs.Missouri.edu

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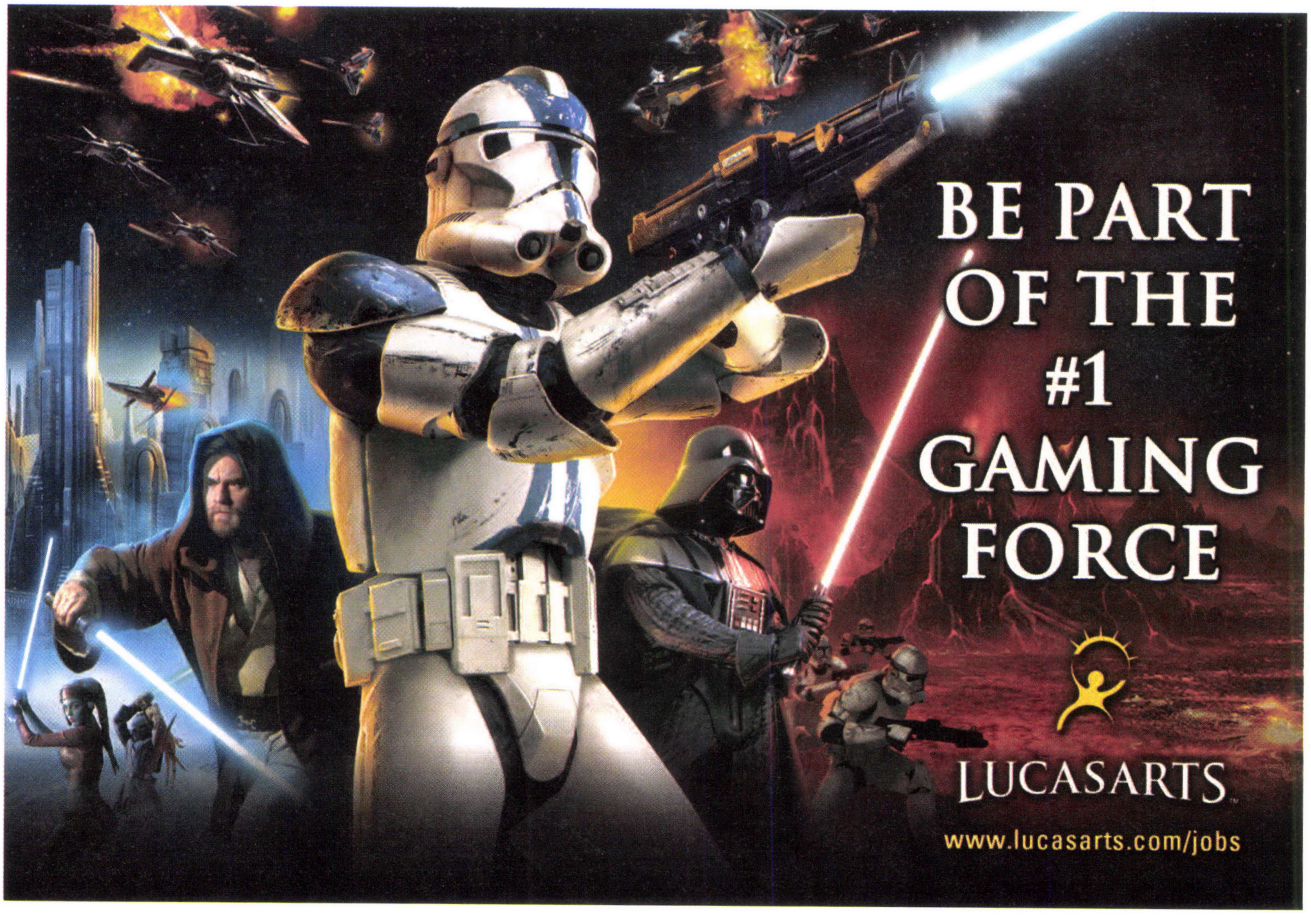
GAME SCHOOL DIRECTORY

NAME	LOCATION	PROGRAMS OFFERED	DEGREES/CERTIFICATION
University of Pennsylvania	Philadelphia, PA	Computer Graphics & Game Technology, Digital Media and Design, Human Modeling and Simulation	BS, MS, PhD
University of Southern California, Interactive Media	Los Angeles, CA	Interactive Entertainment, Interactive Media	BA, MFA
University of Texas at Dallas, Interactive Arts & Engineering	Dallas, TX	Arts & Technology	BA, MA, MFA
University of Washington Educational Outreach	Seattle, WA	Game Development, Game Animation	Certificate
University of Waterloo	Waterloo, Ontario	Computer Science and Computer Engineering	BS, PhD
University of Western Ontario	London, Ontario	Computer Science with Minor in Game Development	BS
Vancouver Film School	Vancouver, British Columbia	Game Design, 3D Animation, Classical Animation, Digital Character Animation (Maya), Digital Design, Sound Design, Houdini & Nuke Certification	Diploma
Vancouver Institute Of Media Arts	Vancouver, British Columbia	Game Art & Design, Professional Game Development	Diploma
Worcester Polytechnic Institute	Worcester, MA	Interactive Media, Game Development	BS



TUITION	ACCREDITED	FINANCIAL AID	LENGTH OF PROGRAM	STUDENT/FACULTY RATIO	PHONE	URL	CONTACT
$30,716 per year (U); $3899 per course (G)	Yes	Yes	1-4 years	6:1	215.898.8560	www.cis.upenn.edu/grad/cggt	cggt@cis.upenn.edu
$33,892 per year (U); $22,942 per year (G)	Yes	Yes	4 years (BA), 3 years (MFA)	11:1	213.740.6797	http://interactive.usc.edu	usc_interactive@cinema.usc.edu
$3,230 (R, G); $5,700 (N, G) for 12 units	Yes	Yes	4 years (U); 1 year (MA); 2 years (MFA)	33:1	972.883.4379	http://iiae.utdallas.edu	Thomas.linehan@utdallas.edu
$639 per course (game development); $619 per course (game animation)	Yes	No	9-12 months	25:1	800.543.2320	www.extension.washington.edu	requests@ese.washington.edu
$13,770-$16,020 CDN per year	Yes	Yes	4 years	19:1	519.888.4567	www.cs.uwaterloo.ca	cs-chair@cs.waterloo.ca
$4,140 (Canadian residents); $12,500 (I)	Yes	Yes	4 years	7:1	519.661.4059	www.csd.uwo.ca	katchab@csd.uwo.ca
$10,750-$29,500 CDN (Canadian residents); $16,750-$46,750 CDN (I)	Yes	Yes	4-12 months	16:1	604.685.5808; 800.661.4101	www.vfs.com	inquiries@vfs.com
$24,950	Yes	Yes	1 year	16:1	604.682.2787; 800.396.2787	www.vanarts.com	sumi@vanarts.com
$32,818 per year	No	Yes	4 years	13:1	508.831.5000	www.wpi.edu/+IMGD	imgd@wpi.edu

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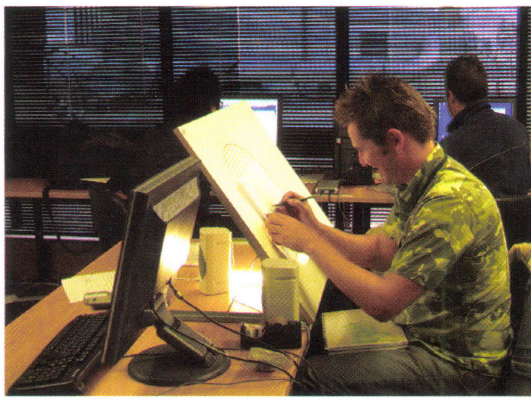
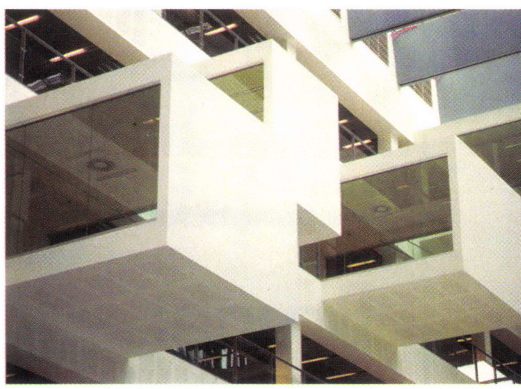
SAMPLING OF INTERNATIONAL SCHOOLS

NAME	LOCATION	URL
Academy of Interactive Entertainment	Watson, Australia	www.aie.act.edu.au
Anhembi Morumbi University	Sao Paulo, Brazil	www.anhembi.br
Bournemouth University	Bournemouth, England	www.bournemouth.ac.uk
Chalmers Medialab	Gothenburg, Sweden	www.ckk.chalmers.se
Charles Sturt University	Bathurst, NSW, Australia	www.csu.edu.au
Computing Science at Middlesex University	Enfield, England	www.cs.mdx.ac.uk
Enjmin	Angouleme, France	www.ejmin.fr
Games Academy	Berlin, Germany	www.games-academy.com
Glasgow Caledonian University	Glasgow, Scotland	www.gcal.ac.uk
HKU Utrecht School of the Arts	Hilversum, Holland	http://english.hku.nl/hku/show
Hong Kong Polytechnic University	Hong Kong	www.polyu.edu.hk
IT University of Copenhagen	Copenhagen, Denmark	www.itu.dk/mtg
Kent Institute of Art & Design	Canterbury, England	www.kiad.ac.uk
Leeds Metropolitan University	Leeds, England	www.lmu.ac.uk
Liverpool John Moores University	Liverpool, England	www.livjm.ac.uk
Media Design School	Auckland, New Zealand	www.mediadesign.school.nz
Northumbria University	Newcastle, England	http://northumbria.ac.uk
Parsons School of Design	Paris, France	www.parsons-paris.pair.com
Temasek Polytechnic	Singapore	www.tp.edu.sg
Qantm	Brisbane, Australia	www.qantm.com.au
University of Bradford	Bradford, England	www.comp.brad.ac.uk
University of Essex	Colchester, England	www.essex.ac.uk
University of Hull	Hull, England	www.mscgames.com
University of Lincoln	Lincoln, England	www.lincoln.ac.uk
University of Paisley	Paisley, Scotland	www.paisley.ac.uk
University of Portsmouth	Portsmouth, England	www.port.ac.uk
University of Sheffield	Sheffield, England	www.shef.ac.uk
University of Teesside	Tees Valley, England	www.tees.ac.uk



Media Design School

University of Portsmouth



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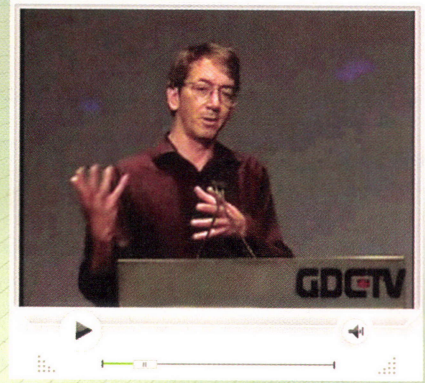

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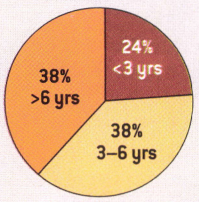
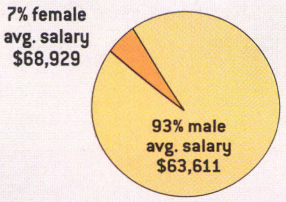
CONTINUED FROM PG 12

GAME DESIGN

Years experience in the industry



Average salary by gender

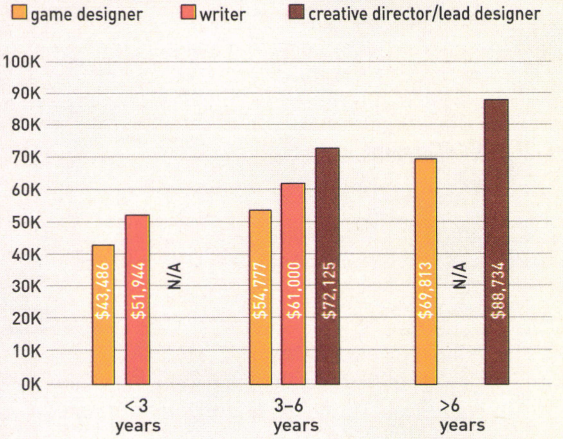


Average salary for designers with 3 or fewer years' experience: $43,486.

Typically, entry-level game developers—that is, people with no prior experience making games—rarely if ever are hired as game designers off the bat. That said, although few game designers declare themselves as having 3 or fewer years' experience in the 2005 salary survey, respondents holding the title "game writer" were also counted as designers, which helped round out the data.

"'Game designer' is a broad spectrum of a single job," says McShaffry, noting that designers are not just creative thinkers. Designers can have specialist jobs, like designing levels, or all-encompassing ones, directing different departments toward a single vision while playtesting, tweaking code, and helping to broker publishing deals on the side. Equally broad is the title game writer, a job that could involve creative duties, such as mapping out epic narratives, or more technical ones, like recording documentation.

Game design salaries per years of experience and position

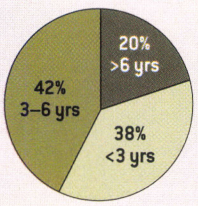


Average salary across all levels of experience
$63,986

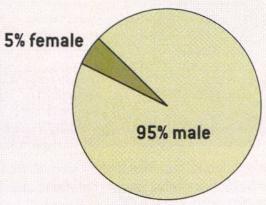
Game designers overall didn't see too much change in pay between 2004 and 2005, with the least experienced designers averaging about what they did the year before.

QUALITY ASSURANCE

Years experience in the industry



Gender representation

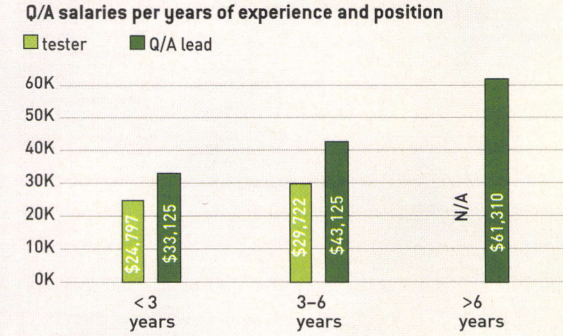


Average salary for testers with 3 or fewer years' experience: $24,797.

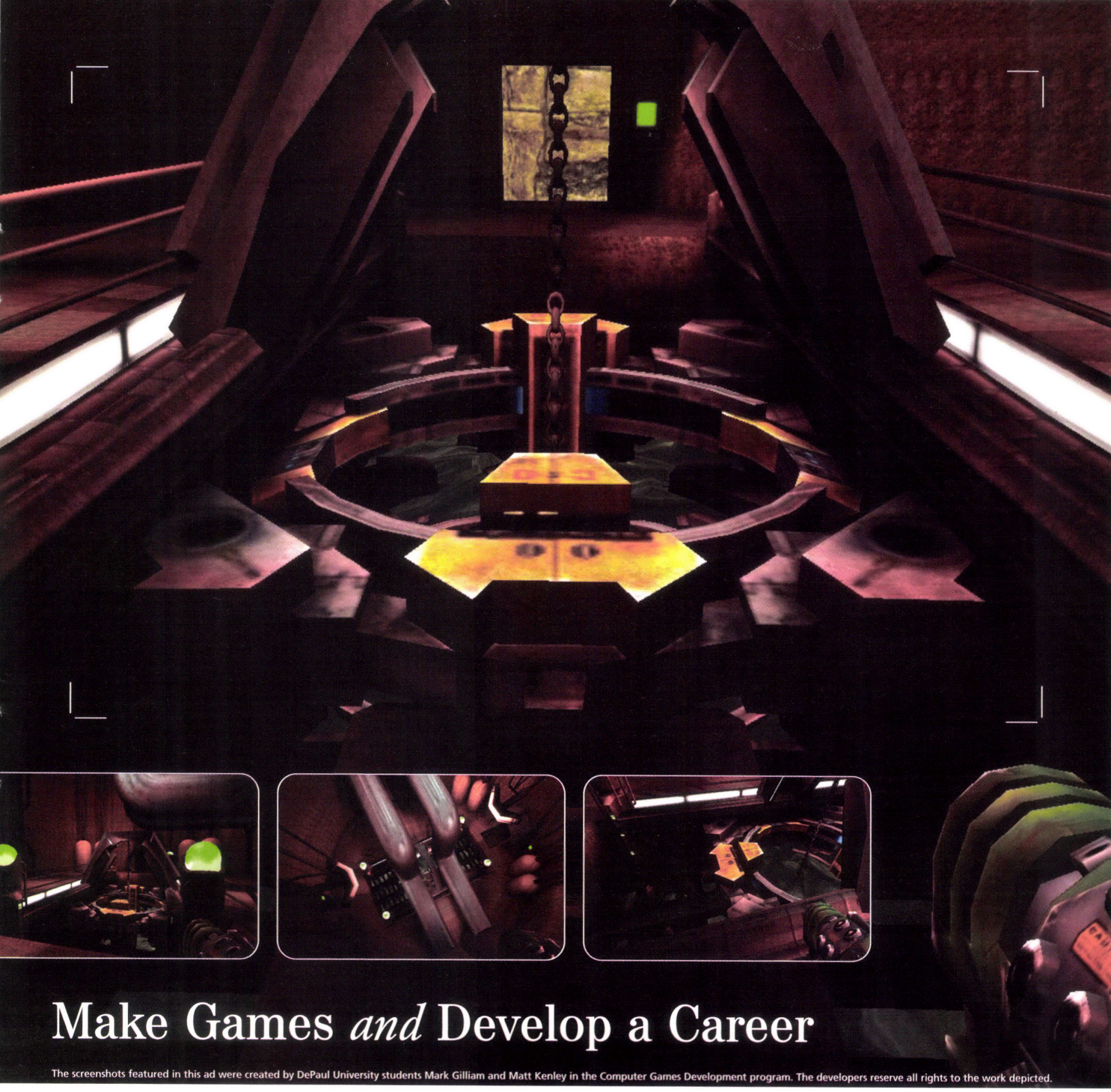
Anecdotally speaking, Q/A is the most common path to any career in game development, but especially for game designers and producers. Across all levels of experience, testers earn only about $37,210, easily making them the lowest paid group in the business. Part-timers likely tilt this figure slightly toward the low end, but it's still paltry compared to what programmers, artists, and other specialists earn.

Surprisingly, 71 percent of Q/A respondents received some kind of medical, dental, or 401K benefits, an atypical fact for a group traditionally thought of as being hourly-paid workers. Mary-Margaret.com's McShaffry says not to discount working in Q/A, despite the fact that it typically entails part-time work. "Q/A is a hotbed of potential game designers," she says. "Testers get more exposure to both good and bad game design," making them a more valuable designer if they eventually follow that career path. An informal apprenticeship exists between testers and designers, producers, or associate producers, with the more experienced group shepherding talented Q/A personnel who are determined to find a lasting career in the business, says McShaffry.

Q/A salaries per years of experience and position



Average salary across all levels of experience
$37,210



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TOP 3 THINGS TO KNOW ...

By Jill Duffy with contributions from Bijan Forutanpour, Steve Theodore, Thomas Grové, and David Sirlin.

... AS A GAME PROGRAMMER

1. C++

Although the field of programming takes into consideration a wide range of job titles, every coder—including those who work on graphics, AI, tools, and animation—should know this programming language. In addition, all programmers should learn how to use Microsoft Visual Studio's C++ compiler/debugger, since it is the primary companion tool to the language.

2. LINEAR ALGEBRA

Game programmers should have strong math skills, but linear algebra (matrix and vector math) should be at the top of their list. Knowing what direction a player, or spaceship, or gun, or explosion is facing, and how fast that object is moving, or colliding, or changing requires a confident handle of mathematical concepts.

3. MAYA AND 3DS MAX

That programmers ought to know a major 3D package may sound like advice only for over-achievers, but it's actually a huge plus that separates the monkeys from the thinkers. Much of a programmer's time is spent manipulating or figuring out what's wrong with a file containing art, so the more a programmer understands art and how it's created, more effective she or he can be.

... AS A GAME ARTIST

1. ART HISTORY

Sure, there's not much call for knowledge of Marcel Duchamp in most games, but a good grounding in the basics of painting and sculpture—from both Western and non-Western sources—is a huge leg-up in any kind of design job. Equally, game artists should know the basics of color theory, composition, and human anatomy. These skills sound rudimentary, but they will never become outdated (unlike software).

2. TWO OF THREE MAJOR PACKAGES: 3DS MAX, MAYA, SOFTIMAGE XSI

No matter how much you like your primary package, being able to function in a second one will teach you more about what's under the hood than any graphics class ever could. Besides, knowing two (or more) major 3D modeling and animation packages makes you twice as eligible for jobs.

3. SCRIPTING LANGUAGES

The quickest way for game artists to eliminate or reduce the most tedious parts of their jobs is to pick up some scripting know-how. MEL, the scripting language of Maya, is one example. Even Photoshop has the ability to automate repetitive junk, so don't waste your life renaming files or cleaning up stray texture nodes by hand when you could be brainstorming or creatively changing the shape of your project.

... AS A GAME DESIGNER

1. HOW TO COMMUNICATE

Strong communication skills are fundamental for all developers, but especially for designers who are both big thinkers and detailed problem-solvers. Designers often have to communicate with everyone—from artists, to engineers, to senior executives, so understanding the culture and vocabulary of these groups can add to their effectiveness. Designers also spend a lot of time brainstorming with each other. Furthermore, designers need to have game design sensibilities and opinions (both analytical and subjective), as well as meaningful ways to communicate them. Finally, being able to communicate using basic software, such as Microsoft Word, Excel, and Visio (for flow charts) rounds out the skill set.

2. SCRIPTING KNOWLEDGE

Many designers are technically minded and write their own scripts for behaviors and actions in the game. Unfortunately, there is no specific software to learn because most companies have their own proprietary system. Instead, future game designers should take an introductory computer programming class to work on modifying scripts in an existing game engine. The Unreal engine has a very deep scripting system called UnrealScript with great tutorials (called "VTMs") from 3DBuzz.com.

3. 3DS MAX, MAYA, OR SOFTIMAGE XSI

The three major 3D packages in the game development industry aren't just for artists and programmers. Designers need to know at least one of them, too. Some companies use these tools to layout levels, some to place tags and collision data on characters. But almost every established game company uses at least one of them. Being familiar with these tools is equivalent to learning to speak the language of the industry to all levels of rank and file.

Build your Character

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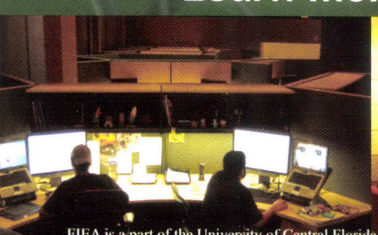
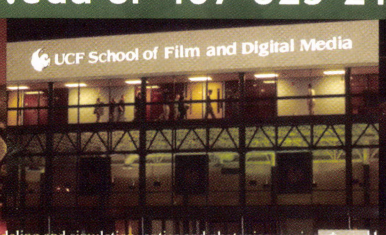
FIEA





FIEA is a part of the University of Central Florida, the nation's seventh largest university and [illegible]

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